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JOHN J. YEALLAND

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P R E F A C E

ATTENDANCE at the meetings held during 1964 numbered 290 members and guests.

To Mrs. B. P. Hall we are once again extremely grateful for her compilation of this Index; to those who have supported the *Bulletin* with so interesting a variety of papers and to the speakers at our meetings we all feel a warm appreciation.

The Caxton and Holmesdale Press has continued to give us valued co-operation and a special word of gratitude is due to the Manager, Mr. K. E. Wiltsher.

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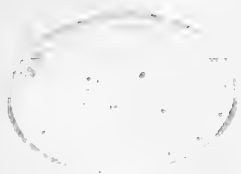
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The six hundred and twelfth meeting of the Club was held at the Rembrandt Hotel, London, on 17th December, 1963.

Chairman: Major-General C. B. Wainwright

Members present, 44; Guests, 26; total 70.

This, the best attended meeting of the year, was addressed by Mr. James Fisher and Mr. Peter Scott.

Mr. Fisher outlined statistics, based on the Pleistocene fossil record, concerning avifaunal survival during this time. Then periods of glaciation were a major factor, but when Man came upon the global scene from the sixteenth century onwards, the rate of extermination of species increased dramatically and expectation of survival of a large part of the existing avifauna very much reduced.

Mr. Peter Scott showed coloured illustrations of a number of species at present threatened with extinction, as well as a few of birds that are slowly increasing in numbers, some as a result of more efficient protection and some by being bred in captivity.

The Hawaiian Goose, having been propagated at the Wildfowl Trust's grounds in Gloucestershire and elsewhere, is the classic example of this latter method of conservation, for fifty of the geese so bred have been returned to the Hawaiian Islands and released on the island of Maui. Other species that thrive and breed in captivity might be kept and later

re-introduced to their native land as and when they can be assured of a reasonable chance of survival there.

The preservation of habitat, control of introduced competitors and predators, protection from Man himself, as well as fostering a sense of interest and responsibility among the peoples of the world, are some of the problems facing all who strive to preserve what is left of the world's fauna.

The European and African races of Baillon's Crake,

Porzana pusilla

by C. W. BENSON

Received 7th November, 1963

Porzana pusilla obscura Neumann of eastern and southern Africa and Madagascar is generally considered distinct from *P. p. intermedia* (Hermann) of central and southern Europe. According to Mackworth-Praed and Grant (1952, 1962) *obscura* differs from *intermedia* in being generally darker, especially darker grey below, and in having a shorter bill. They give the wing of *obscura* as 75–93, as against 89–102 mm. in *intermedia*. *Intermedia* is said to migrate south to Angola and Somaliland.

In 1962, thanks to a grant from the Frank M. Chapman Memorial Fund made at the instance of Dr. D. Amadon, I was able to study the material of the two forms in the American Museum of Natural History. I subsequently studied that in the following further museums, and am especially grateful for assistance to the following individuals whose names are appended: Chicago Natural History Museum (Major M. A. Traylor); United States National Museum (Drs. A. Wetmore and P. S. Humphrey); British Museum (J. D. Macdonald and I. C. T. Galbraith); South Africa Museum (Dr. J. M. Winterbottom); Transvaal Museum (O. P. M. Prozesky); National Museum, Bulawayo (M. P. Stuart Irwin). P. A. Clancey also kindly lent three specimens from the Durban Museum.

In colour I can find no constant difference between European and more southern specimens. Regardless of sex, adults vary considerably in the intensity of grey on the under side, and many European specimens are no less dark below than those from further south. On the upper side there is no marked variation, either geographical or individual, and immature specimens, largely white below, are similar to adults.

Major Traylor, who compared with me in Chicago eight European specimens with eight African, agreed that they were inseparable on colour. So, too, did C. M. N. White, who examined with me over 60 specimens in the British Museum. I had already come to a similar conclusion after comparing seven European with 22 African and Madagascan specimens in the American Museum of Natural History. Witherby *et al* (1944) give sexual differences in *intermedia*, in particular the female having more white on the throat. But some apparently adult specimens of both *intermedia* and *obscura* sexed as females virtually lack any white, and others sexed as males have it well developed.

Measurements (in mm.) of wing and culmen (from base) are as follows:

	Number of specimens	Wing	Culmen	100 x culmen wing
Europe	45	84-95 (90.0)	17-20.5 (18.7)	20.8
Africa (1)	25	80-90 (84.4)	17-21 (18.4)	
„ (2)	57	76-93 (84.2)	17-20.5 (18.4)	
Africa, total	82	76-93 (84.2)	17-21 (18.4)	21.9
Madagascar (1)	7	80-87 (83.4)	18-20 (18.5)	
„ (2)	19	82-94 (85.3)	18.5-21 (19.9)	
Madagascar, total	26	80-94 (84.8)	18-21 (19.5)	23.0

Included with the European series are one from Algeria and one from lower Egypt (whence Meinertzhagen, 1930 records *intermedia* breeding). Excluded is an outstandingly large specimen in the British Museum from Malta, wing 100, culmen 21 mm. (1) signifies specimens collected between 1st May and 30th September, theoretically unlikely to be palaeartic migrants. (2) signifies specimens collected between 1st October and 30th April, or undated, and could *a priori* be palaeartic migrants. All African specimens are from south of 10° N.

The figures for the second African and Madagascan series, supposedly containing some palaeartic migrants, show no striking difference from those in the first two such series. On average the African and Madagascan specimens have shorter wings, but there is considerable overlap, and in my opinion *obscura* is not worth recognising as distinct from *intermedia*. Although Mackworth-Praed and Grant state that the bill is shorter in *obscura* than in *intermedia*, my figures do not support this, and in comparison with the wing-length it is proportionately longer, especially in the Madagascan series.

The specimen with the longest wing (90 mm.) in the first African series, in the American Museum of Natural History, was collected by Archer at Tug Wajaleh, ex-British Somaliland, 18th September, 1920 (see also Archer and Godman, 1937). It is the only Somali record of which I am aware, and it must be on the basis of this specimen that Mackworth-Praed and Grant record *intermedia*. But I am not convinced that it is a palaeartic migrant. The date seems early, and I have seen two European specimens from Ahlsdorf collected on 17th September and another from there on 24th September, while a specimen from Dover is dated as late as 9th October (I have incidentally seen two Italian specimens collected as early as March, and ten Spanish specimens collected in this month, the earliest being from Valencia on the 7th). Mackworth-Praed and Grant also record *intermedia* from Angola, but of eight specimens, all in the British Museum, collected by Ansorge at Catumbella, none has wing more than 87 mm., and all are dated *August*. Understandably, Traylor (1963) only lists *obscura*. In the second African series there are only two specimens with wings over 89 mm. One, wing 93 mm., was collected on 23rd Decem-

ber, thus well within the period when palaeartic migrants might be present, but as far south as Excelsior, Orange Free State. The other, wing 92 mm., was obtained even further south at Paarl, western Cape Province. Furthermore it laid an egg in early *September*, a few days after being captured. There are two Madagascan specimens with wing over 89 mm., one 91, and one 94 mm. Neither bears any date or precise locality. The latter is probably an exceptionally large, locally bred individual, analogous to the Maltese specimen with wing 100 mm. To summarise, I find no convincing evidence from the material which I have examined of the occurrence of palaeartic birds in tropical Africa or further south. On the other hand Morel and Roux (1962) record specimens of *intermedia* from Senegal (19th November, 1st January). These specimens may very well be palaeartic migrants, especially as Bannerman (1931, 1951) does not mention *obscura* (or *intermedia*).

Benson (in press) produces evidence that two other crakes, *Crex egregia* and *Porzana marginalis* are migratory in southern Africa, only normally present from about December to April. Dated specimens of *P. pusilla* from Africa south of 8° S. fall into months as follows: January, 9; February, 2; March, 1; April, 1; May, nil; June, 3; July, 3; August, 12; September, 5; October, 10; November, 11; December, 6. In addition, Rudebeck (1955) records a specimen for November from South West Africa. These figures indicate no particular peak, and in this region *P. pusilla* may be largely resident, with no more than local movements, in accordance with seasonal fluctuations of water-level. Extracting the figures for the Rhodesias and Nyasaland, where the presence of *Crex egregia* and *P. marginalis* coincides almost entirely with the rains, and there is a very well marked dry season from May to October, the result is: February, 1; March, 1; June, 2; July, 3; October, 2; November, 1; December, 2. Again, of the overall figure of ten specimens for August, eight are from Catumbella, in arid south-western Angola, in the middle of the dry season. Sneyd Taylor, in a series of papers dealing with waterfowl and waders at Fort Beaufort, Cape Province (*Ostrich*, 1946-55), gives dates of occurrence for every month except April and May, while Courtenay-Latimer (1962) regards it as a rare resident. A further point is that while Benson gives records of *C. egregia* and *P. marginalis* taken at sea or at buildings at night, and presumably on migration, no such African records have been traced for *P. pusilla*.

P. pusilla has been recorded as breeding in Abyssinia (Guichard, 1948). The female containing a fully developed egg to which he refers is in the British Museum, and has wing 83 mm. only. It is the only Abyssinian specimen examined. South of Abyssinia, except that I collected a male with enlarged testes at Loudon, Mzimba District, Nyasaland, 20th March, 1938, there is apparently still no definite breeding record north of the Zambezi. The record quoted by White and Winterbottom (1949) of breeding in Barotseland in February and March has still to be corroborated.

With reference to the records from Senegal by Morel and Roux (1962), Dr. Morel kindly informs me that the male (19th November) has wing 89 mm., and the female (1st January) wing 91 mm. These measurements are well within the range for European specimens, and considerably larger than the average of African.

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The species of *Cercococcyx* in Mwinilunga, Northern Rhodesia

by C. W. BENSON

Received 13th August, 1963

Benson (1958) records four specimens of *Cercococcyx mechowii* Cabanis from the Lisombo Stream, northern Mwinilunga District. At the time of collecting he thought that they must be *C. olivinus* Sassi, which has been collected as close as Katapena, in the Katanga (Chapin, 1939). But having no other material of either species available he donated one specimen to the British Museum, and was informed that it was *mechowii*.

The remarkably long wing-lengths (148-157 mm.) of these specimens, and of another (155 mm.) collected at Salujinga (10° 58' S., 24° 07' E.) on 25th August, 1962, recently caused me to investigate the matter further. Thanks to Mrs. B. P. Hall and Mr. M. P. Stuart Irwin I have had the loan of eight specimens of *mechowii* and seven of *olivinus* from the British Museum, and of four Mwinilunga specimens together with one of *C. montanus* Chapin from the National Museum, Bulawayo.

There is no doubt that all five Mwinilunga specimens are not *mechowii*, but *olivinus*. Chapin (1928: 2) mentions colour-differences between the two species on the under side which seem better marked and more constant than those which he gives for the upper side. In the key at the end of his paper, and again (1939), he only gives the latter. The blackish bars on the under side are fewer and narrower in *olivinus*, and the under tail-coverts lack the markedly buffy wash present in *mechowii*.

The difference in the proportions of the wing and tail, given by Chapin (1928, 1939) is borne out quite well by my own measurements. To these I am able to add those of the material in the American Museum of Natural History, taken while working there in June, 1962, thanks to a grant from the Frank M. Chapman Memorial Fund, very kindly arranged by Dr. D. Amadon.

It would be tedious to show these measurements (in mm.) for each specimen individually, but the following summary (averages in brackets) may be of value:—

Cercococcyx mechowi

	Wing	Tail	100 x wing tail
17♂♂	128–143 (136.9)	168–194 (180.5)	75.3
6♀♀	132–140 (135.8)	170–195 (181.2)	74.9
1o	135	181	74.6

Wing-tail ratios for 19 individual specimens:— 73 (three), 74 (five), 75, 76 (two), 77, 78 (two), 79 (two), 80 (three).

Cercococcyx olivinus

18♂♂	137–155 (146.1)	149–189 (169.6)	86.1
3♀♀	142–148 (145.0)	153–173 (163.0)	89.0
1o	139	156	89.8

Wing-tail ratios for 21 individual specimens:— 78 (two), 80, 81 (two), 82, 83, 84, 85, 88, 89, 90 (three), 91 (three), 92, 93 (two), 95.

[Note that southern specimens of *olivinus* tend to have longer wings, eight from Mwinilunga and Ndalla Tando and Camabatela, Angola measuring 145–155 (150.4), 14 from Lukolela (1° 07' S.) and from north of the equator 137–150 (142.9)].

The ranges of *montanus* and *olivinus* approach one another closely in the eastern Congo and Uganda. In Uganda *montanus* is known from Ruwenzori above 5,000 feet, and there is a male of *olivinus* in the American Museum of Natural History, with wing 150, tail 166 mm., from the Bugoma Forest, between Hoima and the east side of Lake Albert.

There remains for discussion the relationship of *montanus* to *olivinus* and *mechowi*. According to Chapin (1928) the voices of the latter two are quite distinct. His description of the call of *montanus* tallies quite well with my own impressions gained at Amani, Tanganyika and in Nyasaland (Benson, 1948). Benson (1958) remarks on the close similarity of the voice of Mwinilunga birds to *montanus*, and goes so far as to suggest that *mechowi* and *montanus* are conspecific (of course he really intended this to apply to *olivinus* and *montanus*). It is rather surprising that Chapin does not comment on any similarity between the voice of *olivinus* and *montanus*, especially as his description of that of *olivinus* seems applicable to Mwinilunga birds.

Chapin (1928: 9) gives the wing-tail ratio in eastern Congo and Ruwenzori specimens of *montanus* as 69–76%, and in two from Angoniland and the Uluguru Mts. as 79, 81%. The figures given by Benson & Benson (1948) result in a ratio of 80.3%. These ratios lend no strong support for closer relationship with either *olivinus* or *mechowi*, but in view of their close similarity in voice *olivinus* and *montanus* can at least be regarded as forming a superspecies. Where their ranges approach one another there is evidently altitudinal zonation.

I am grateful to Mr. C. M. N. White for studying with me the material recently loaned. He agrees with my decision to regard *olivinus* and *montanus* as forming a superspecies.

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Comments on colour varieties in the Golden Plover

by BRYAN L. SAGE

Received 21st October, 1963

In the course of studies on albinism and melanism in birds I have collected records relating to five species in the family Charadriidae. A total of 24 of these records refer to the Golden Plover *Charadrius apricarius* Linnaeus and these fall into the following categories—melanism 1, unclassified 1, albinism 22.

MELANISM

The single record in this category is of an almost entirely black bird with some yellowish mottling on the back, seen in the vicinity of St. Columb, Cornwall, on 24th January, 1933 (C. J. Stevens *in litt.*).

UNCLASSIFIED

A bird in which the general body plumage was a pale lemon-yellow with the normal dark markings reduced to a very pale brown; bill and legs normal in colour, was seen near Tarsset, Northumberland, on 23rd November, 1957 (G. W. Temperley *in litt.*). The description suggests that this may have been an example of dilution, but it is impossible to say definitely that the reduction of the pigments had been uniform throughout. The other alternative is that the bird was a non-eumelanic schizochroic variety in which the great reduction of the black pigment resulted in an impression of overall paleness.

ALBINISM

The 22 records in this category can be divided into two groups, *viz.*:

(1) Albinism affecting the body plumage only, or the body and wings. There are only six records in this group and in view of the apparent infrequency of this form of albinism in the Golden Plover it seems worth while listing these.

(a) A specimen obtained near Forest Gate, Essex, in April 1871 by Mr. J. Glessing had all the feathers cream and white (Glegg 1929).

(b) A partially white example purchased in Leadenhall Market was exhibited to the British Ornithologists' Club on 10th December, 1913. It had numerous white feathers in the plumage, and all the markings on the back and wings were white instead of golden (*Bull. Brit. Orn. Club* 33: 87).

(c) A buff-coloured bird with white wings was seen near St. Keverne, Cornwall, in December 1932 (C. J. Stevens *in litt.*).

(d) An albino was present at Skegness, Lincolnshire, on 12th November, 1955, and was reported by J. K. Burton (R. Cornwallis *in litt.*).

(e) A completely white bird with some brownish-yellow markings on the wings was seen at Birsay, Orkney Islands, on 2nd September, 1956 (P. J. B. Slater *in litt.*).

(f) One with the head, neck, flanks, rump and tail-coverts pure white, remainder of the plumage normal, was seen at Weymouth, Dorset, on 30th December, 1958 (A. J. Hold *in litt.*).

(2) Albinism affecting only the wings.

Sixteen records come into this group, which is an interestingly high proportion. In four of these records the birds are described as having "white wings" and no further details are given. In nine other cases the white was stated to be confined to the primaries only. One is mentioned as having a white patch on the upper surface of each wing; another had white on the primaries and probably also on the secondaries of each wing; and one had white on the primaries and greater wing-coverts.

The latter example is shown in Plate 1. The wings were found at a Peregrine eyrie in Scotland in May 1963, and the albinism was exactly



Wing of Golden Plover, Scotland, May 1963, showing white markings on the primaries and greater wing-coverts. The markings were identical on both wings.

symmetrical in each wing. The 6th–8th primaries of each were white except for the tips, and three of the greater wing-coverts were white for the basal half.

DISCUSSION

It is interesting to note that when albinism does occur in this species it affects the wings far more frequently than any other part of the plumage, and often results in a strikingly symmetrical patterning. Melanism would appear to be of very rare occurrence.

In two previous papers (Sage 1958, 1959) I described a colour aberration that has been recorded in a fairly stable form in five species of the genus *Larus*. This aberration takes the form of an oblong white patch located on

the primary wing-coverts, but sometimes extending onto the primaries. A comparison of Plate 1 with the illustrations given in the papers just mentioned reveals a certain measure of similarity. Whether or not any significance can be attached to this is problematical, but the basic resemblance of the markings and the similar *locus* are worth noting.

ACKNOWLEDGEMENTS

In addition to the correspondents mentioned in the text I am grateful to Mr. Eric Gorton of the Bolton Museum for the loan of the Golden Plover wings from the Peregrine eyrie, and to Mr. C. J. O. Harrison of the British Museum (Natural History) for discussion on various points.

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House Crow's nest in a house

by K. Z. HUSAIN

Received 3rd August, 1963

The Indian House Crow (*Corvus s. splendens*) is one of the commonest birds of East Pakistan and one whose close association with man is well known. Although it spends practically the whole of the day, as well as of the year, near and around houses, it is known to nest only in trees. I recently saw a pair of these House Crows building inside a house, which, as far as I can see (Baker, 1922; Fletcher & Inglis, 1936; Whistler, 1949; Ali, 1955; and others) has not yet been recorded in literature.

The nest was in fact built in my house which occupies the first floor of the two-storied southern (front) block of a quadrangular residential Hall of the University of Dacca. There is a fairly big lawn in front with only two Bottle-palm (Royal-palm) trees close to the gate and two buildings at a distance. There are several big trees about 100 yards away and many House Crows nest in them. The pair in question built their nest in the verandah of my house. The verandah is about 45 feet long, 8 feet wide and 13 feet high. The roof is supported in the front by seven 2-feet wide pillars at a distance of five feet from one another; the verandah has a 3 feet high wall rising from the floor, and also a 3 feet wide wall descending from the roof. An unused 3 feet long metal bracket, which once conducted electric wires, projects from the wall of the house and into the verandah. The bracket is located at 13 feet above the floor, and there are some broken wires connected to it. The House Crows brought in some sticks and built their nest; thus, it can be said that the nest was built well within the house.

The nest must have been built between the 23rd and 29th April, 1963, when I and my family were away. An egg was laid on the 30th April or 1st May. The egg hatched on the 21st May, but unfortunately the nestling died on the 14th June.

This unsuccessful attempt by the House Crows at nesting in a house, the circumstances which presumably led to the nestling's death, and a few other activities of these crows during the period under review seem to me to be of significance, and are therefore briefly reported below.

(1) The House Crows in question laid only one egg. This seems to be significant, because, according to existing literature, they lay at least four,

the maximum number being as many as seven. Fletcher & Inglis (*op. cit.*) mention that very rarely they may lay two eggs.

(2) Only the female seemed to incubate the egg, though Ali (*op. cit.*) says that both sexes share incubation. (Incidentally, the male of this pair was recognisable by two broken tail-feathers, as well as by activities to be mentioned below.) During incubation, the male remained relatively silent; hardly came to the nest, but often came and sat on the palm tree in front of the house.

(3) The female appeared to be very afraid of human presence, and would not go to the nest as long as anybody was in the verandah. Once in



the nest, she would not feel disturbed, but would immediately fly away if anybody looked directly at it.

(4) As soon as the egg hatched, the male suddenly became very alert, aggressive and noisy. He would raise quite a hue and cry at anybody passing through the verandah. If threatened, he would fly away most reluctantly and sit on the tree. There, he would raise his bill as high as he could and then strike the leaves with great force, repeating this several times and tearing the leaves into pieces. The female would also perform this but less aggressively.

(5) Both the parents participated in feeding the nestling, but the male appeared to do so only occasionally. His main duty was to sit on the tree and guard the nest almost constantly. It never happened that anyone passed through the verandah without being 'charged' by him, but the slightest movement of hands would drive him far away. Neither of the parents would go to the nest to feed the nestling as long as anybody was in the verandah.

(6) For the first week or so, the female sat over the nestling for the whole night and quite often during the day, just as she sat over the egg during incubation, but from the second week she did not do so, and both the parents passed the nights sitting on the roof of the building in front of my house.

(7) On the 14th morning, while loitering in the verandah, I was surprised at not being 'attacked' by the parents, who were sitting silently on the tree. I naturally suspected something unusual and, on checking the nest, found the nestling dead. As I tried to bring it down, the parents rushed to the verandah, protested for a while, and then became silent. A little later, they came to the nest, looked around silently, and then went away never to return, although they are still living around my house.

In conclusion, I cannot claim that I know the exact reasons for the nestling's death, but there is no doubt that there had been a lot of interference and the parents could not properly feed and look after it, which may well have caused its death. I have a feeling that the nesting would have been a success but for our presence in the house. On this assumption, I suggest that, although the House Crows are closely associated with human dwellings, they do not build in houses because they have not overcome the fear or shyness of actual human presence close to their nests or nesting site. This may well be a reason why they build high up in trees far beyond human interference. Other birds of similar habit, the House Sparrows for example, do not have such fear and can successfully complete their nesting in human dwellings. The failure on the part of the House Crows under discussion is, therefore, due to natural selection which does not seem to favour such sporadic and out of the way venture by them.

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A peculiar mutant sunbird

by MELVIN A. TRAYLOR

Received 18th October, 1963

During October and November 1961 I had the opportunity of collecting in the Kalabo District of Barotseland, Northern Rhodesia. Here one of the most common sunbirds was the Marico Sunbird, *Nectarinia mariquensis* (Smith) and we succeeded in obtaining a series of 12 adult males. Among these was one from Sikongo that at first glance appeared to be completely melanistic. However, it is actually normal in pigment, but has the structural part of the feather so changed that there is no iridescent colour.

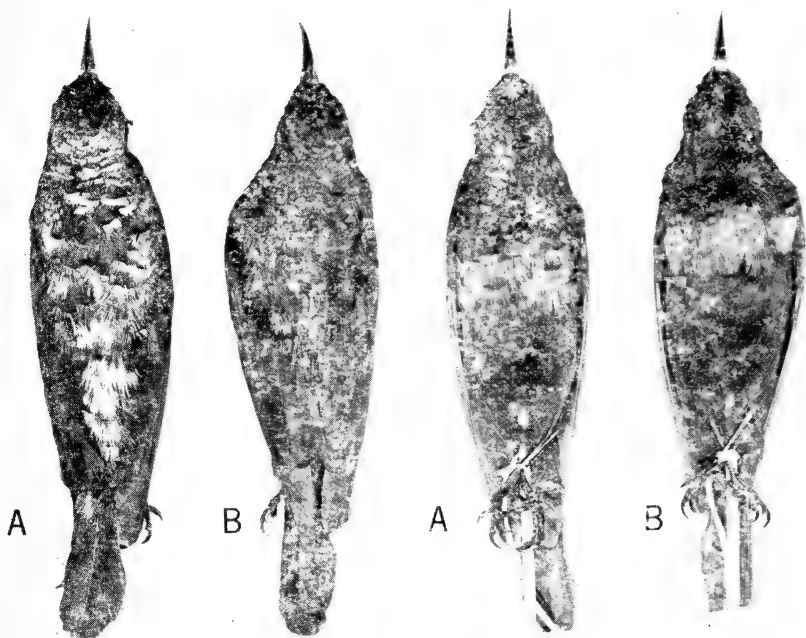
Normal *mariquensis* is iridescent green on the back, lesser and median coverts, head, and upper breast, with upper tail-coverts and a thin band on the breast shading to bluish-violet. Below the iridescent violet on the breast is a red breast band. Each feather of this band has a broad red tip with a narrow violet iridescent band below it. Belly, wings and tail are black.

The mutant male is wholly black with the exception of the red breast band which is normal in colour (see fig.). The areas, which in normally coloured birds are green, are glossy black, and the only sign of colour is on the upper tail-coverts and breast where there is a faint wash of purple. These are the areas that are iridescent bluish-violet normally. Since the

red breast band, the only area which is dependent on pigment alone for colour, is normal, the black appearance of the mutant must be due to structural change.

One of the most recent, and certainly the most lucid, descriptions of the mechanism causing iridescence in birds is that of Greenewalt (1960). Although the detailed structure that he describes is that of hummingbirds (Trochilidae), the general principle of reflection and extinction of colours is equally valid for other families.

Iridescence is caused by the reflection of incident light from the front and back surface of a film of such thickness that the crests of the light



Dorsal (left) and ventral (right) views of a normal (A) and mutant (B) sunbird, *Nectarinia mariquensis*. The bright areas of the normal bird are iridescent green, but in the mutant bird these areas are glossy black. The red pectoral band, which depends on pigment alone, is unchanged in the mutant bird.

waves reflected from the rear surface reinforce the crests of the waves reflected from the front surface. Since the phase of light waves from the rear surface of the film is reversed, the film must be an odd number of quarter wave lengths ($1/4$, $3/4$, $5/4$, etc.) in optical thickness. Physical considerations show that the thickness of the reflecting film is $1/4$ wave length in bird feathers, and this was demonstrated by Greenewalt in a remarkable series of electron microscope photographs of a hummingbird barbule. To continue the physical principle: when the thickness of the film approaches an even number of quarter wave lengths (0 , $2/4$, $4/4$, etc.),

the crests of the light waves reflected from the rear surface will coincide with the troughs reflected from the front surface, and the light will be cancelled out, the film appearing black.

In hummingbirds, the reflecting films appear as small, oval platelets about 2.5 microns long by 1 micron wide. These platelets are thickly clustered on the surface of the barbule giving the appearance of a tiled floor. In the gorget feathers of the hummingbird they are arranged in three layers intensifying the brilliant reflectance. The individual platelets are one-half wave length in optical thickness, but behave as two superimposed films of $1/4$ wave length each to give the required reflectance. The exact structure in sunbirds has not been investigated in the same detail as in hummingbirds, but it must be essentially the same, for the same physical principles apply to both.

In the mutant sunbird from Kalabo, the gross appearance of the feathers, except for the lack of metallic green colour, is the same as in normal birds. A normal dorsal feather has the proximal two-thirds blackish and of a soft texture, and the distal third iridescent green with a hard shiny surface. A dorsal feather from the mutant bird is the same on the proximal two-thirds and has the same hard, shiny surface on the distal third, but is black instead of green. This surface similarity holds for all the feathers, including the red pectoral feathers which have a thin glossy band below the red pigment. Examination under an optical microscope at 430X reveals no apparent differences.

Since the surface structure of the feathers of the mutant bird is to all appearances normal, the difference must lie in the thickness of the reflecting platelets (assuming that the mechanism is the same as in hummingbirds). A doubling of the thickness of the platelet would result in the extinction of the reflected light, without in any way changing the surface appearance. A reduction in the thickness of the platelets to a small fraction of a wave length would accomplish the same thing. As these changes would be of the order of 0.15 to 0.25 microns, less than the wave length of visible light, they could not be observed by the most powerful optical microscope.

Although there is no direct evidence, the most probable cause of the black appearance of the sunbird from Sikongo is a mutation which has caused either a doubling or a great reduction in the thickness of the reflecting mechanism of the barbules. This would leave the surface appearance unchanged, while eliminating the green iridescence. Such a mutation would probably involve only a single locus of a chromosome. Although there is no reason to believe that this mutation should be less common than those producing albinism or melanism, this is the only record that I have found.

I would like to acknowledge the generous grant from the National Science Foundation, G 13221, which made my collecting trip possible, and the kindness of C. W. Benson who seconded to me his gifted collector Jali Makawa, who actually collected the specimen.

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Geographical distribution of the Mallophaga (Insecta)

by THERESA CLAY

Received 19th July, 1963

The distribution of the Mallophaga is essentially a host distribution, but as the group becomes better known, instances are being found of what appear to be geographical distribution of species. The following discussion applies only to relationships between Mallophaga parasitic on birds belonging to the same host order. A species of Mallophaga parasitic on

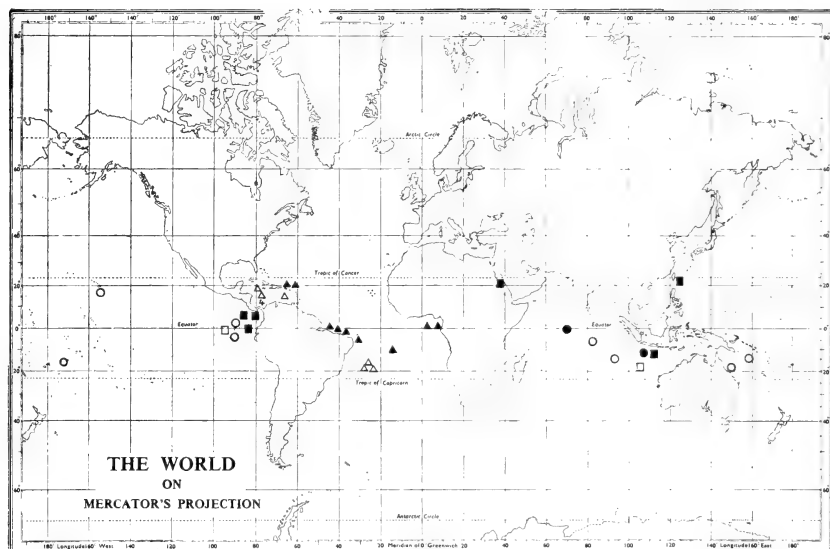


Figure I

KEY

Triangles = *Pectinopygus garbei*
 ▲ = *Sula leucogaster*
 △ = *Sula sula*
 Squares = *Pectinopygus annulatus*
 ■ = *Sula leucogaster*
 □ = *Sula sula*

Circles = *Pectinopygus sulae*
 ● = *Sula leucogaster*
 ○ = *Sula sula*

one species of bird may be the same or similar to that on a not closely related bird living in the same geographical area instead of, as is usual, being nearer to those species parasitic on the most nearly related hosts wherever these occur. A possible example of this (see Clay, 1961: 53) is the presence of a species of *Rhynonirmus* on *Bartramia longicauda* (subfamily Tringinae), *Rhynonirmus* being a mallophagan genus elsewhere restricted to the subfamily Scolopacinae. The species of *Rhynonirmus* found on *Bartramia* is similar to that on *Philohela* (Scolopacinae)—the breeding ranges of the two birds overlap. Such distributions may be explained by one of the following hypotheses:

1. The species parasitic on *Bartramia* was secondarily acquired from *Philohela*, became established on the new host and subsequently diverged through isolation and adaption to the environment of its new host.

2. The genus *Rhynonirmus* was originally found throughout the Charadriidae and has become extinct on all species except *Bartramia* and those belonging to the Scolopacinae.
3. The phylogenetic position of *Bartramia* is with the Scolopacinae not with the Tringinae (see Timmermann, 1957: 87).
4. In some cases, although not that of *Bartramia*, the louse which appears to have an anomalous distribution may be on the wrong host due to contamination during collecting or temporary natural straggling. It has been shown (Clay, 1962: 200) how it is sometimes possible to check whether specimens taken from a certain host belong to an established population on that host or are temporary stragglers.

The distribution of two of the species of wing lice (*Pectinopygus*) on the gannets (Sulidae) appears to be geographical and is of different kind to that of the *Bartramia* parasites and rather more difficult to explain.

The members of the Sulidae are parasitised by a number of species of *Pectinopygus* of which one distinctive species (*P. bassani* [Fabricius]) is restricted to *Morus*; a second species (*P. annulatus* [Piaget]) is found on *Sula neboxi*, *Sula dactylatra*, *Sula leucogaster* and possibly *Sula sula*, with perhaps related forms on *Sula variegata* and *S. abbotti*. The distribution of these species follows a normal pattern; a species group (*P. annulatus*) parasitising a number of related birds and a distinct but related species (*P. bassani*) on a distinct but related group of hosts (*Morus*.) In addition, on *Sula sula* and *Sula leucogaster* there are two rather similar species, *Pectinopygus sulae* (Rudow) and *P. garbei* (Pessôa & Guimarães), which on the available material, show an unusual type of distribution. Figure 1 shows that Mallophaga collected from *Sula sula* and *Sula leucogaster* in the Atlantic area belong to *P. garbei* and those from *Sula sula* in the rest of its range and from *S. leucogaster* in the Indian Ocean belong to *P. sulae*. This is an unusual distribution pattern for species of Mallophaga and its explanation is difficult. The following possibilities are suggested:

1. These results are based on insufficient material and, in fact, both species occur on both hosts. In spite of the 28 records available this is possible and one of the reasons for publishing this note is to appeal for more material from all the species of *Sula*.
2. Originally both species occurred on both hosts and for some reason *P. sulae* died out in one area and *P. garbei* in the other. However, these two species do not show the character differences usually associated with sympatry and appear more likely to be host replacements of each other. It is also difficult to suggest what ecological or other factors might have led to the elimination of the one species in each of the areas concerned.
3. Originally *P. sulae* was restricted to one host and *P. garbei* to the other, and in one area *P. sulae* became extinct on one host which secondarily acquired *P. garbei* and the reverse process took place in the other. Again a rather complicated and unlikely explanation.
4. One of the hosts, say *Sula sula*, was parasitised by a louse population of the *sulae-garbei* type. The population of this bird living between the continent of America and Africa became isolated from the rest of the population by these land barriers, thus isolating their louse

populations. As a result these diverged and ultimately became two well defined forms (see Clay, 1949: 283–284). If these were acquired secondarily by *Sula leucogaster*, then this host would have acquired one form of the louse (*P. garbei*) from *Sula sula* in the Atlantic area and the other (*P. sulae*) in other parts of its range. This is more likely to have happened before *Sula sula* took to the un-gannet-like habit of nesting in trees and bushes which would have made contact between the two hosts less probable. It would appear that *Sula leucogaster* is frequently parasitised by *P. annulatus* (see fig. 1) and it is possible that where this species is absent the *sulae* group can become established. It is perhaps significant that in the Atlantic area where *garbei* is commonly found on *S. leucogaster*, there are no records of *annulatus*.

The following statements by Murphy (1936) support the suggestion that Africa and the American continent would have formed effective barriers to the gannet populations: "there can be no question about the fact that the Brown Booby (*S. leucogaster*) finds in this strip [Isthmus of Panama] an effective barrier against natural distribution from either oceanic region to the other (p. 854)" "... boobies in general shy off continental coasts and . . . rarely if ever cross extensive bodies of land" (p. 863).

More material of Mallophaga from all species of *Sula* may help to elucidate these problems of distribution.

HOSTS AND LOCALITIES

Host	Locality	No. of hosts
<i>Pectinopygus garbei</i> (Pessôa & Guimãraes, 1935).		
<i>Sula leucogaster</i> (Boddaert)	Puerto Rico	2
	Coast of Brazil	4
	Ascension Is.	1
	Gulf of Guinea	2
<i>Sula sula</i> (Linn.)	Little Cayman, Jamaica	5
	Puerto Rico	1
	Trinidad Is., S. Atlantic	3
<i>Pectinopygus sulae</i> (Rudow, 1869)		
<i>Sula leucogaster</i> (Boddaert)	Maldivé Is., Indian Ocean	1
	Java	1
<i>Sula sula</i> (Linn.)	Cocos Is., Indian Ocean	1
	Indian Ocean	1
	Rennel Is., Coral Sea	1
	South Diamond Islet, Coral Sea	1
	Hawaii	1
	Galapagos	2
	Lat. 15° 9', long. 175°	1
	Lat. 15° 9', long. 175° 50 W	1

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The distribution, within the eggshell, of the pigments producing egg coloration

by C. J. O. HARRISON

Received 21st May, 1963

INTRODUCTION

This paper consists of a short description of the normal distribution of pigments in and on the eggshell, and the way in which they govern the apparent external coloration of it. Most of this was discovered by Von Nathusius in the late nineteenth century. His work was largely overlooked by later writers although it has recently been brought together, translated, and edited by C. Tyler (pers. comm.). In view of the published information by Schönwetter (1927), Hobson (1947), Pring (1958-62) and Friedmann (1948), which appears to indicate some degree of confusion regarding egg pigmentation, it seemed advisable to set out this description of pigment distribution.

The information given below is based on data gained by microscopic examination of radial sections of eggshell, and by the grinding away of surface layers. The facts given explain the coloration of the great majority of birds' eggs. There are exceptions, but it is proposed to make a more detailed study of these, and they are not described here.

SHELL STRUCTURE

The shell of a bird's egg is generally regarded as consisting of three layers. The innermost layer rests on the shell membrane and is well supplied with air-spaces. The shell is formed on a base consisting of a mass of separate nodules deposited on the shell membrane with a network of spaces between them. The remainder of the shell is built up with these nodules as a base, the air-spaces persisting and being visible in radial section as a series of small holes in the shell structure immediately above the membrane. In some eggs, particularly those of the Galliformes and Falconiformes these nodules appear as a series of rounded projections from the inner surface of the shell, giving this layer the name by which it is generally known, the Mammillary Layer.

Immediately above this is the main thickness of the shell. This, like the mammillary layer, consists of a hard crystalline material laid down on a basis of protein fibres. Owing to the hardness of the shell, portions of it were, in the past, normally decalcified before microscopic examination was possible, and the crystalline structure, mainly calcium carbonate, was lost. As a result this portion of the shell appeared as a fibrous mass, and was given the inappropriate name of the Spongy Layer. The outermost layer of the shell is known as the Cuticle. This is normally regarded as a thin transparent outer coating, but recent work by Tyler (in press, and pers. comm.) has shown that this layer may vary considerably in thickness, and in some families it is considerably thicker and far more complex in structure than was formerly believed.

PIGMENTATION

1. PERVASIVE OR GROUND PIGMENT

The mammillary and spongy layers may be one of two colours, either white or blue. There does not seem to be any definite evidence of a white pigment being present, and the white colour appears to be the result of reflection and refraction of light from internal surfaces in the crystalline structure. Where there are many such surfaces the material of the shell is very white, and broken surfaces have a rather granular appearance. Where there are few the material is more translucent and less white, while a broken surface will appear glassy. In general the spongy layer tends to appear whiter, and the mammillary layer less white and more translucent. In some families the spongy layer may be partly translucent, particularly towards the outer surface where there may be a transparent zone either immediately under, or perhaps as a part of, the cuticular layer. The apparent whiteness of the shell structure in the eggs of many species appears to coincide with the distribution of the protein matrix fibres as given by Romanoff and Romanoff (1949). Where such fibres are most numerous as, for example, in the inner part of the spongy layer, the shell appears whiter in radial section, and it is possible that these fibres may help to create the structural interference that results in the white appearance.

Where blue occurs as a shell colour it is normally present with uniform distribution throughout the thickness of the shell. Its mode of distribution is very even, without obvious variation, and its occurrence is due to the presence of a blue-green pigment, Biliverdin, (Lemberg 1934) this being the pigment which Sorby (1875) called Oöcyan. Where translucent or transparent zones are present in a blue shell they appear darker blue than the rest of the shell owing to the absence of white light reflected from internal surfaces. Within birds' eggs as a whole it is possible to find a complete gradation from deep blue to pure white. In the White-browed Jay-thrush, *Garrulax sannio*, the difference is individual, different birds laying either white or blue eggs; and in some other passerine species where egg colour is variable, patterned shell may show a ground colour which is either white or blue in different individuals; while white eggs may occur abnormally in species which normally lay blue eggs.

2. PATTERN PIGMENT

The patterns on eggshells appear to be produced by a single pigment which may appear as three different colours, red, brown, or black, or intermediate shades of these. The pigment is normally applied to the surface of the egg in separate masses which form spots or blotches on it. In some species such as the Quail, *Coturnix coturnix*, it is purely superficial, but in the majority of birds with patterned eggshells it is applied at intervals during the period of shell formation. If shells of the latter type are examined in radial section the pigment will be seen to occur as dark layers parallel to the surface of the shell, and may be at any depth within the thickness of the spongy layer although tending to be more frequent towards the outside. Such pigment layers may occur one above the other.

The shell itself is frequently translucent, and colour may show through it. In freshly laid white eggs of smaller birds it is sometimes possible to see the colour of the yolk showing through the shell. Where spots of pigment are present within the thickness of the shell they are frequently apparent on the outside of it, although this depends to some extent on their depth within the shell. Their appearance is modified by the thickness of the white or blue spongy layer overlaying them, and they will appear paler and slightly different in colour, being grey, purple, lilac, pink, fawn, or similar shades. Their appearance may also vary according to the thickness and depth of colour of the pigment layer which is present. In some cases this pigment may be present over the whole surface or throughout the shell, either as minute specks or generally diffused. The shell may then appear wholly grey, red, brown, or some paler shade of these.

3. SUPERFICIAL PIGMENT

In many eggs there is a yellowish pigment present in or under the cuticular layer. This colour is usually associated with a thin transparent cuticular layer and modifies the appearance of underlying pigments. Where buff pigment occurs it is also only apparent as a superficial pigment layer. There seems insufficient evidence to show whether these buff and yellow pigments represent two different superficial pigments or whether they are forms of the same pigment. Some authorities appear to regard both the superficial and the pattern pigments as forms of a single red-brown pigment (Romanoff and Romanoff, *op. cit.*). In some eggs the superficial pigment appears to extend a little way into the spongy layer, but in view of Tyler's findings (in press) concerning the structure of the cuticular layer in the waterfowl it seems inadvisable to make assumptions as to where the cuticular layer ends and the spongy layer begins. As a result of the presence of these superficial pigments, white eggs may appear cream, yellow, or buff, while blue shells may appear some shade of green or olive. Removal of the cuticular layer by acid or abrasion will reveal the colour of the spongy layer. Most green eggshells, with one or two exceptions, are blue with a superficial yellowish layer. Such a layer will also modify the appearance of the pattern pigments to some extent, making them appear darker.

FINAL COMMENTS

From the above information it can be seen that the colour of the majority of eggshells is due to the presence of a very limited number of pigments. There may be a blue colour throughout the shell thickness; red, brown, or black markings may either be superficial or scattered through the thickness of the spongy layer; and a superficial yellow or buff layer may be present. The different colouring of eggshells is the result of the way in which the pigments present are arranged. A few examples will illustrate this. The yellow-and-black patterned eggs of the Red Grouse, *Lagopus scoticus*, have a white shell with a superficial layer of black pigment patches covered by a yellow cuticular layer. The red-spotted blue eggs of the Mistle Thrush, *Turdus viscivorus*, have a blue shell with patches of red-brown pigment distributed throughout the thickness of the spongy layer. The buff eggs, with reddish spots, of the Moorhen, *Gallinula chloropus*,

have a white shell with patches of reddish pigment distributed throughout the spongy layer and a superficial buff layer. The greenish, black-spotted eggs of the Carrion Crow, *Corvus corone*, have a blue shell with black pigment patches distributed throughout the thickness of the spongy layer, and a superficial yellowish layer.

The original descriptions of the eggs of some rare species have been based on eggs taken from the oviduct of a dead bird, and such eggs occur in collections. It should be remembered that an oviduct egg usually lacks a cuticular layer, and the colour shown by the shell is usually that of the spongy layer. In such circumstances buff eggs will appear white and green or olive eggs will appear blue.

The above descriptions give some indication of the way in which pigment distribution contributes to the final coloration of the eggshell. Much of this information is self-evident, and this account supplements earlier descriptions mainly with regard to the extent to which the blue colour and pattern pigments have been found to occur within the structure of the shell.

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13 JAN 1964
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DINNERS AND MEETINGS FOR 1964

21st January, 18th February, 17th March, **28th April (A.G.M.)**, 19th May, 15th September, October (with B.O.U.), 17th November, 15th December.

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The six hundred and thirteenth meeting of the Club was held at the Rembrandt Hotel, London, on the 21st January, 1964.

Chairman: Mr. C. W. Mackworth-Praed

Members present, 20; guests, 5.

Dr. R. K. Murton of the Ministry of Agriculture and Fisheries spoke on the Wood Pigeon, on control of its numbers and on experiments made in capturing pigeons by means of foods treated with a narcotic.

The paper was discussed by several members and Dr. Murton replied.

**Moult and colour change in
the Pin-tailed Whydah, *Vidua macroura***

by C. J. O. HARRISON

Received 21st May, 1963

A summary of the moults and plumages of the Pin-tailed Whydah, *Vidua macroura*, was included by Friedmann (1960) in his study of the parasitic weaverbirds. He considered that there was a complete post-nuptial moult into the eclipse plumage and that the nuptial plumage was acquired by a partial body moult involving the head, the sides of the breast, scapulars and lesser coverts; while the remainder of the breeding plumage, with the exception of the remiges which grow at this time, was thought to be acquired by the wearing away of the buff edges, leaving the black portions of the feathers to produce the black part of the plumage. He also quoted the findings of Brown and Rollo (1940) concerning the way in which the buff edges of the feathers dropped off in a short period prior to breeding, in a manner which suggested that something more than normal wear was involved.

In a recent casual examination of some specimens it was observed that in the eclipse plumage the outer third on either side of the feather was warm reddish-buff with a narrow zone of black between. The loss of this buff area would leave a feather which was only a third of the normal width, and similar feathers on adult males in breeding plumage were examined to see if this was so. It was found that the black feathers on males in breeding plumage appear to be similar in width to those on males in eclipse plumage. Taken in conjunction with the earlier statements concerning moult, this would appear to suggest that there had been a spread of black eumelanin in these feathers. This seemed unlikely and a careful examination was therefore made of the large series of skins of this species in the collection of the British Museum (Natural History).

SUCCESION OF PLUMAGE STAGES

It was found that the skins of males could be grouped into six stages, which were arranged and assigned an alphabetical letter in sequence. Birds in full eclipse plumage were at A and B, and those in full black-and-white breeding plumage at E. The stages were as follows:—

A. These were birds in fresh eclipse plumage. The feathers of the dorsal surface, remiges and rectrices were blackish with broad reddish-buff edges



Fig. A

B. These birds were also in eclipse plumage. The plumage showed varying degrees of wear, in some cases quite considerable and resulting in an extensive loss of buff edges, the feathers tending to have a slightly ragged tapering outline.



Fig. B

There was a little fading, the buff edges of the feathers tending to become paler and less reddish, while the darker parts tended to appear browner. This loss of buff edges was especially noticeable on the tertials, remiges and rectrices.

C. These were birds in a transitional plumage state. The most obvious indication of the partial moult into breeding plumage was the presence of partially grown elongated rectrices. In addition, head and breast showed a variable amount of moult into black or white breeding plumage. White feathers with small buff tips were present on the rump and tail-coverts in place of the streaked black-and-buff feathers of the eclipse plumage which have no white on them. At this stage the feathers of the dorsal surface were a mixture of old and new. Fig. E shows two adjacent tertials from a bird at this stage, the rectrices of which were about two inches long. One of the feathers shown is a worn eclipse one in which

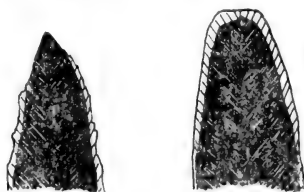


Fig. E

the buff edges are almost completely lost; the other is an obviously new feather with a buff border. An examination of these birds at this stage revealed that there is a general replacement of old worn feathers by new ones which resemble those of the eclipse period in being black with a buff edge. In these new feathers, however, the black central portion has a blue-green gloss to it and the buff edges are narrower, and, on the contour feathers, are confined to two narrow crescentic zones on either side of the tip.



Fig. C

As far as can be seen, this stage appears to involve a complete moult, including remiges and rectrices.

D. These were birds which showed the full breeding plumage, but on which evidence of buff feather edges still persisted. On the contour feathers these were confined to small traces of buff fringes on scattered feathers of the lower mantle, while on the tertials, remiges and rectrices, the buff borders persisted but were reduced by wear to very narrow zones fringing the edges of the feathers. They showed a tendency to fade to a pale creamy colour.



Fig. D

E. These were birds in full breeding plumage in which almost all signs of buff edges had disappeared, although a few showed pale fringes on the tips of the tertials and the edges of the rectrices.

F. These were birds in a transitional stage, moulting from breeding plumage to eclipse plumage. Characteristic individuals showed loss of long remiges, and a mixture of wholly black feathers and new feathers with broad reddish-buff edges on the dorsal tracts.

LOSS OF BUFF EDGES

Reference has been made to the apparent rapidity with which the buff edges are lost on feathers which are mainly black. It is known that the presence of melanin pigments in a feather give it greater mechanical strength and resistance to abrasion. The presence of black eumelanin appears to make a feather stronger than does the presence of brown phaeomelanin. In a study of schizochroism (Harrison, in press) it was found that, in the absence of eumelanin, buff-coloured feathers containing only brown phaeomelanins were prone to rapid fading, and to a heavy loss of structure by abrasion. The difference in wear between the black and the brown portions of feathers in *V. macroura* would appear to be due to this difference in strength. This would not, however, explain why the buff edges should be so rapidly and completely lost.

Some of the feathers from the mantle of individuals of this species were examined under the microscope to see if there was any evidence of a special zone of structural weakness occurring on the barb of the feather at the junction of the change in pigmentation. No such structural variation was found. It is apparent that a single barb will have a strongly resistant eumelanin proximal portion and a less resistant phaeomelanin distal portion. If abrasion occurs the distal portion will tend to yield to pressure. If the whole feather were of a similar type of pigmentation this tendency to yield would be equal throughout the structure, but in the case of feathers such as those under consideration the distal portion will tend to bend while the proximal portion will show greater rigidity. There will therefore be a tendency for a sharp bend to occur at the point where the change of pigmentation takes place, and at this point the barb will be subject to the greatest pressure and therefore tend to fracture, causing the phaeomelanin distal portion to break away. In this way there will be a tendency for the entire buff edge to be lost, due to the difference in strength of the two portions.

Where the buff edge is more extensive and is present on a greater length of the barb, there will be less likelihood of a sudden pressure at one point if the tip of the feather is abraded, and in addition the presence of overlapping feathers extending over the buff area may tend to modify the effect. This might explain why this sudden and complete loss of buff edges is less apparent in plumages such as the eclipse plumage of the male.

CONCLUSIONS

From the evidence of the skins examined it would appear that the Pin-tailed Whydah, has two complete moults annually, and that at each moult feathers with buff edges appear over most of the dorsal surface. With the exception of the head and breast, the black appearance of the breeding plumage is produced by the loss of the buff edges of feathers resulting

from a complete pre-nuptial moult. In a collection of skins it is possible to find a series which appears to show reduction of buff edges in a gradual succession from the eclipse to the full breeding plumage, and this has tended to conceal the existence of a complete moult between the eclipse and the breeding plumage.

The figures are diagrammatic sketches, not necessarily to scale, intended to show only the extent of the black and the buff (diagonally shaded) colouring.

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Mottled plumage in the genus *Corvus*

by BRYAN L. SAGE

Received 27th July, 1963

C. J. O. Harrison (1963) has recently dealt with the subject of mottled plumage in various species of the genus *Corvus*, and concludes that this condition is not genetic in origin as originally suggested by Dr. James M. Harrison (1948) and the writer (Sage 1956), but is caused instead by periods of unbalanced diet affecting the rhythm of melanin deposition. Despite his lengthy treatment of the subject I am quite unable to see that he has produced any evidence definitely disproving the genetical theory. Whilst agreeing that the majority of discussion on the subject must perforce be largely theoretical, it may be said that the explanation of the condition as originally proposed is perfectly in accord with simple and orthodox genetics.

Since the publication of my last paper on this subject (Sage 1958) I have done further research on the matter with the result that some of my earlier views are somewhat modified. Furthermore, I feel that C.J.O.H. has included in his discussion several types of plumage variation (i.e. brown plumage, white wing-barring, and fault bars or "hunger traces") which I consider are not in fact analogous, thereby confusing rather than clarifying the situation.

BROWN PLUMAGE TYPES

A mounted specimen of the Raven *Corvus corax* in the collection of the British Museum (Natural History) is described by C. J. O. Harrison (pp. 43-44) as being a dilute partial albino, having the feathers of the lower belly, forehead and throat loose and fluffy in texture, and the pigmented portions of the plumage greyish-brown. The fluffy texture of the plumage of this specimen, which I have myself seen, is presumably due to some defect in the interlocking mechanism of the barbules, the identical factor which gives rise to the "hairy" variety of the Moorhen *Gallinula chloropus*. It may be noted that in the Moorhen this condition is frequently, but by no means invariably associated with depigmentation of the plumage to a greater or lesser degree. I have in my possession a specimen of the Rook *Corvus frugilegus* given to me by the late Alfred Hazelwood of the

Bolton Museum. In this bird the entire plumage, with the exception of the wings and tail, is medium-brown in colour and fluffy in texture; the wings and tail are almost normal but the feathers are whitish terminally to a varying degree. I consider the fluffy or "hairy" plumage condition to be genetically determined. As a further example of the former condition I would include the Carrion Crow *Corvus corone* that I originally described (Sage 1956a) as an example of the mottled type of plumage; the wing of this bird was uniformly brownish.

It is a well known fact, as I stressed in 1956, that a defective diet can produce in captive corvids (and probably other species as well) a uniformly brown or partially depigmented plumage. The condition occurs in young birds and also in adults, in the latter case most usually at the period of moult. At a later date the plumage reverts to the normal colour. During the process of moulting a bird is under considerable physiological strain and it may need only a very slight deficiency in diet at this time to upset the process of pigmentation of the growing feathers. An adult Rook that I shot in October 1961 near Hertford had the plumage entirely normal with the exception of the head and neck, the feathers of which were two differing shades of brown resulting in a mottled appearance. The head plumage is the last to be moulted in the change from summer to winter plumage in this species, and I infer that in this instance the moult had progressed normally until the final stage, at which point some physiological factor caused the abnormally pigmented feathering. Other records of adult corvids in this type of plumage exist. It may also be noted that in some years, e.g. 1951 and 1954, both brown and mottled examples have been found together in the Ashwell rookeries, and the former have also occurred in years (e.g. 1952) when no mottled mutants were present. I shall return to the significance of this point later on.

It remains only to say that I do not consider either the "hairy" type of plumage or the partially or completely depigmented brown type to have any connection whatsoever with the mottled plumage *sens. stricto* of the Rook. The fact that a combination of these conditions may sometimes occur in one individual does not affect this point at all.

WHITE WING-BARRING

The second type of plumage variation included by C.J.O.H. in his overall discussion is that of white wing-barring in the Carrion Crow and Jackdaw *Corvus monedula*, as recorded by Dr. James M. Harrison (1957a & b) and the writer (Sage 1956c). I agree with J.M.H. that this is probably a condition of comparatively recent origin compared with the mottled plumage of the Rook which has been known for a great many years, and also that it is remarkably stable in pattern. The white wing-barring in the Carrion Crow is now certainly widespread as I have received a good many reports from quite different localities. Furthermore, my own studies have produced pretty clear evidence that this condition can persist unchanged through the various moults into adult plumage. At the time of writing there are at least nine adult Carrion Crows in my own district that exhibit this type of plumage pattern.

It seems fairly evident that this condition is genetically determined: if it were due to a period of unbalanced diet it would be extremely unlikely to persist into adult plumage. Additionally, I find it hard to imagine that

Carrion Crows in a number of widely scattered localities not only suffer from a defective diet, but as a result also exhibit an exactly similar pattern of plumage variation. There appears to be an almost complete lack of any record of white wing-barring being produced in conditions of captivity as a result of faulty diet. The only exception, as mentioned by Dr. James M. Harrison (1962) is that Fritz, Hooper, Halpin and Moore (1946) have shown that a deficiency of lysine can produce symmetrical white wing banding in bronze-wing turkey poults. It does not follow, however, that this is the explanation of the variant plumage in the Carrion Crow and Jackdaw. In the broods of young Carrion Crows where white wing-barring has been noticed, there have been some normal birds present also. Presumably all have been similarly fed, so that if the wing-barring is caused by a defective diet it would be necessary to postulate a selective susceptibility to this factor; this is surely highly improbable.

C. J. O. Harrison when discussing this particular aspect says "The former species (*i.e.* Carrion Crow) seems particularly prone to such defects, especially in urban or suburban areas where the principle feeding places are often rubbish tips, and the diet is likely to be abnormal or deficient." The known facts, however, do not support this contention. In the first place in those areas where corvids habitually feed on rubbish tips, the habit can hardly be described as abnormal. Secondly, it so happens that all the records in my own area of white wing-barring refer to birds that are entirely rural in their habitat, and the same is true of quite a large proportion of records that I have received from other areas. Dr. J. M. Harrison (1957b) suggested that this plumage aberration may be due to inbreeding in a population that has increased due to a lack of predation or other control. This may well be the case, as there are numbers of aberrant Carrion Crows in the vicinity of Hilfield Park Reservoir, Hertfordshire, which have almost certainly originated in this manner. In 1960 and 1961 a pair of this species reared three and two young respectively, all with white wing-barring. In 1962 two pairs bred at the reservoir; one pair in the same tree as in the two previous years produced two young with white wing bars; the second pair (one of which was barred and was probably one of the birds reared in 1961) nested some 300 yards distant, and two of their three young were barred on the wings. All these birds are still about. There is no question of the population density in this area being so great as to make it difficult for the birds to obtain normal food. C.J.O.H. places what I consider to be too much faith in the evidence provided by nutritional disorders in captive birds. The white banded wing type reported in the turkey by Fritz *et al* is probably morphologically similar to the white wing-barring in the Carrion Crow and Jackdaw, but the evidence I have given above shows, in my opinion, that the factors responsible cannot be the same.

FAULT BARS AND DIET

The next point requiring discussion is that concerning fault bars or "hunger traces". So far as they are concerned there appears to be no evidence of consistent correlation with mottling or barring of the feathers. In the past five years or so I have examined several hundred young Rooks and somewhat lesser numbers of young Crows. In the great majority of cases at least a few fault bars were found, sometimes on one or two

feathers only. In other cases virtually all of the wing and/or tail feathers exhibited them. Out of a total of 430 young Rooks examined, 32 had a narrow pale band(s) associated with the fault bar(s), in some instances this bar was no more than fractionally paler than the rest of the feather. On the other hand there were some 57 individuals which had narrow bands of less heavily pigmented areas on the feathers of the wings and/or tail which were totally unrelated to the presence of fault bars. Practically every one of the remaining 341 birds had narrow transverse bars on some feathers of the wings and/or tail, occasionally also on the body plumage. In the majority of cases the inhibition of pigmentation was so slight that the bars could only be detected with great difficulty. There is nothing new in this, Glegg (1944) called them latent or subordinate markings and found them on *every one* of 935 specimens that he examined. It seems quite unnecessary to invoke any explanation for this phenomenon other than that the bars are caused by the lower metabolic rate or decreased blood pressure during the hours of darkness, as suggested by Riddle (1908).

The above evidence, based on a large random sample, of the lack of correlation in the siting of fault bars or "hunger traces" and the pale bars caused by reduced pigmentation clearly negatives the comment made by C. J. O. Harrison on page 45 of his paper, where he comments on "... the apparent relationship between such bars and hunger traces." This relationship is not apparent to me. It hardly seems necessary to add that I do not consider the often strikingly pale and broad transverse barring or tips to the feathers found in the mottled variety of the Rook (in extreme cases on the entire body plumage) to be analogous with the type of pale bars discussed above. It may also be added that the latter may often be found, along with fault bars or "hunger traces", on individuals of the mottled type.

Further evidence quoted by C.J.O.H. as analogous to the Rook problem are the experiments of Rollin (1959) who reared Blackbirds *Turdus merula* in captivity on a thoroughly abnormal diet, the basic component of which was dog biscuits, and found that new feather growth was greyish or whitish. I regard this comparison as ludicrous in the extreme as a diet so markedly abnormal could hardly fail to have some effect, but I have yet to see or hear of any evidence proving that wild birds have to subsist for long periods on an extremely abnormal diet. Furthermore, the markings on Rollin's birds had little resemblance to those found on the variant Rooks discussed here. Although these dietetic experiments under avicultural conditions are interesting, I feel that their relation to natural populations is somewhat doubtful and interpretations of this nature should be subject to caution. As mentioned earlier, aviculturists have often found that various species of Corvidae will assume a brown type of plumage if their diet is deficient. It is probably reasonably safe to assume that this factor is also responsible for the brown-plumaged Rooks, Crows, and Jackdaws sometimes seen in the wild, but this has never been definitely proved.

At one time I gave serious consideration to the theory that abnormal feeding conditions were the cause of mottled plumage in the Rook. It has been suggested that very dry springs, as in 1959 when young Rooks of this type were present in the Ashwell rookery on the Herts/Cambs border, may make it difficult for the adults to obtain proper food for the young. I

therefore listed all the years when mottled Rooks had been found anywhere in the British Isles and checked them with the meteorological reports; I was unable to find any consistent correlation. I see no reason to suppose that where an important item in the diet of Rooks, *e.g.* Lumbricidae, are hard to obtain, that a satisfactory alternative cannot be found. Indeed, a specific instance of this is mentioned by Owen (1959). On page 48 of his paper C.J.O.H. refers to "The individual bird which consistently fails to rear or feed its young properly, year after year, is known to aviculturists." Do such cases always have an effect on the pigmentation of the plumage, and has anyone definitely proved that this occurs in wild corvids? I think not. The young of the Rook hatch asynchronously, with the result that when food is scarce the smallest young die of starvation.

Let us accept for the moment that the mottled type of plumage in the Rook is in fact due to a diet deficiency. At the Ashwell rookery careful records have been kept over a long period, and the incidence of such birds has rarely been higher than 1%. As this is based on the number of mottled birds found amongst the birds that are shot, the actual incidence is probably even lower. In view of the strong tribal feeding habits of this species it seems illogical to suggest that a food deficiency would affect only an extremely small proportion of the population. Why, also, should this supposed shortage of food occur with such frequency at the Ashwell rookery, which is situated in a highly fertile area, and not at other rookeries? To take the matter further, let us also accept that the brown plumage type found in wild corvids is, as mentioned earlier, analogous with that found in captive birds. In some years both this and the mottled type are found simultaneously at the Ashwell rookery. Are we therefore to believe that a food shortage results in the occurrence of two entirely different types of plumage variation? This, to my mind, is completely unacceptable. It might also be mentioned that although corvids are fairly often kept under avicultural conditions, there appears to be no case on record of a mottled type being bred in captivity.

Finally, if the factors responsible for the mottled plumage condition are in fact those stated by C.J.O.H., then surely the condition would be much more frequent and widely distributed than is the case. On the other hand if the causative factor is a rare recessive gene(s), then its persistence in one relatively isolated group of rookeries, with occasional outbreaks at other localities is quite logical. It is probable that gene flow between widely separated rookeries is rather restricted. As far back as Millet (1828) it was suggested that this condition was an inherited character.

SUMMARY

The subject of mottled plumage in the Rook is discussed, and it is suggested that this condition is not analogous with other types of variation such as abnormal brown pigmentation, white wing-barring as found in the Carrion Crow and Jackdaw, and fault bars or "hunger traces". It is considered that mottled plumage is not caused by an unbalanced diet as suggested by C. J. O. Harrison (1963), and that no evidence disproving the original theory of a genetical basis for this condition has been produced.

ACKNOWLEDGEMENTS

I am indebted to Dr. James M. Harrison and Dr. Jeffery G. Harrison for reading the draft of this paper and for making a number of helpful suggestions.

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Further comments on hybridisation between the European Wigeon and Northern Shoveler

by JAMES M. HARRISON

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In 1959 the writer was able, through the generosity of Captain C. R. Peacock, to comment upon the characters presented by crossing a male European Wigeon (*Anas penelope* Linnaeus) and a female Northern Shoveler (*Anas clypeata* Linnaeus), an instance of a cross in which the exact parentage and age of the individual was known (Harrison, 1959).¹ Again thanks to Captain Peacock I have been able to investigate the sibling of the above mentioned specimen, which presents a marked variation in facial pattern, though in other respects very similar, while additionally I have been favoured with a third specimen presenting characteristics so closely approximating to those of the instance reported in 1959 (*loc. cit.*) and its sibling as to suggest that the same parent species were involved. The resemblances in fact between the first example and the last one mentioned, for which I am indebted to The Wildfowl Trust, are such that there would appear to be no reasonable doubt that the individual is also a European Wigeon x Northern Shoveler hybrid.

Dealing with the sibling individual first; this bird was hatched in the spring of 1957 and was presented to me in October 1962. It was kept alive



Fig. I European Wigeon x Northern Shoveler hybrids, ventral aspects.
On left, ♂ adult, May 18th, 1963, Sibling.
Centre, ♂ adult, March 26th, 1959, Sibling.
On right, ♂ February 19th, 1963.

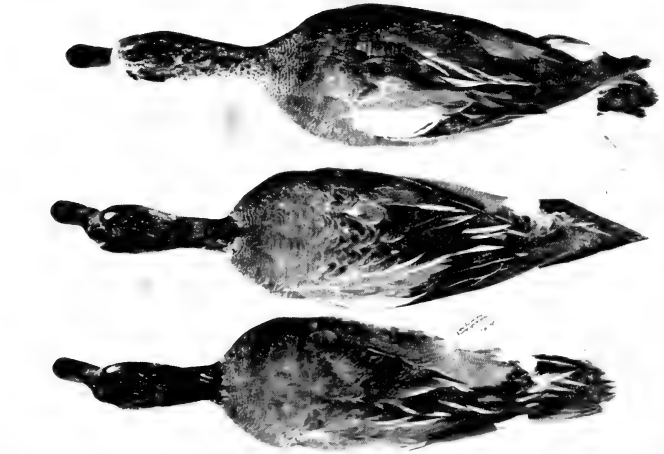


Fig. II Same specimens, dorsal aspects.



Fig. III Same specimens, lateral aspects.

until 18th May, 1963, when it was decided to undertake certain investigations concurrently with similar investigations of an adult drake of each parent species. For the two control birds I am indebted to Mr. W. Mouland for the Wigeon, and the Wildfowl Trust for the Shoveler.

Since the exact parentage was known, it was considered of importance to establish, if possible, the genetic state for the two parent species, as well as for that of the hybrid and to this end, after appropriate pre-medication to arrest mitosis, the birds were chloroformed and material from the gonads and bone marrow was immediately taken and submitted to Dr. B. M. Slizynski of the Institute of Animal Genetics, Edinburgh, ⁶ for investigation, and who very kindly undertook this side of the research.

The birds were then prepared as cabinet specimens, the pectoral girdles, a femur from each and the respiratory bullae of all three being also saved as comparative material. It should also be noted that this bird proved on dissection to be an anatomical male, there was no pathology found although the right testis was slightly crenated.

In my 1959 communication (*loc. cit.*) a very detailed description of the plumage characters of the first of these hybrids was given and certain details are repeated herein for a ready comparison with the other specimens.

As can be seen from the accompanying plates, these three birds show a very marked similarity, and this communication is intended to stress the individual variation that such a cross can show. It is fortunate that the widest variation is between the two siblings of known parentage, and that the other individual of which the parents are not known, in its characters closely resembles the first of the three recorded hybrids. It should be noted at this stage that the second of the two siblings developed the "bimaculated" facial pattern when it first assumed its full plumage, and this it has maintained subsequently up to the time of investigation, as distinct from the "bridled" facial pattern of the other two individuals.

This paper is to be read as a continuation of, and very relevant to that of 1959.

On their broad morphological characters it can be seen in the plates that the upper and lower aspects the three birds all show the same general pattern, and that they are to some extent intermediate. This state is perhaps best demonstrated by the wing-coverts which grade from greyish to grey and white to largely white. In the plates the two siblings of known parentage are the left and centre birds, the bird of unknown parentage is on the right. While the body plumage, wings and tail, indicate an intermediate state between the two parent species, it is in the heads and necks that the most striking characters are seen, for these, as has been stressed in previous communications, are in no way intermediate between the two parent species, but show characters relating to another species. They may almost be interpreted as clinal, from the bimaculated to the bridled state, both of which it is contended are fundamentally basic and found in various other species in the Anatidae, and as substantiating my previous comment (1959) (*loc. cit.*) that "there would seem little doubt that bridling and bimaculation are to be regarded as an expression of a unit character, always having the same location both when occurring spontaneously as well as when resulting from interspecific hybridisation".

The individual variation as between these three hybrids is shown in the following table:

	♂ ad. May 18th 1963 (Left)	♂ ad. March 26th 1959 (Centre)	♂ February 19th 1963 (killed by other ducks) (Right)
UPPER PARTS:			
Back adjacent to neck.	Dark vinaceous, at centre greyer. Fine pale sepia vermiculations.	Distinctly greyer with vermiculations slightly heavier and more distinct.	Ground colour ash with well marked pale sepia vermiculations.
Mantle.	Nearest Van Dyke Brown (Ridgeway 1886, Pl. iii., 5) finely and obscurely vermiculated Isabella colour (<i>loc. cit.</i> Pl. iii, 23).	Nearest Mouse Grey (<i>loc. cit.</i> Pl. ii., 11) finely and obscurely vermiculated ashy-grey. In mid-line almost uniform.	Near to bird of 26.3.59. but some admixture of pale brownish wash.
Lower back.	Appears somewhat brownish and centres of feathers darkish sepia.	Distinctly greyish, centres of feathers less dark sepia, edges ashy.	Almost uniform at lower edge; greyish-brown with fine vermiculations above (much damaged).
Back and rump.	Brownish-sepia.	Sepia feathers edged whitish.	? (much damaged).
Upper tail-coverts.	Blackish, edged white and also some pale brownish ash.	Upper mostly grey finely vermiculated black: lower black edged white, also some pale brownish-ash.	Uppermost grey very finely vermiculated black, lower black edged very pale brownish-ash.
Rectrices.	Central and innermost sepia, outer pairs very pale sepia edged very pale ashy-brown.	Central pair sepia narrowly edged white; rest palest sepia broadly edged white and finely vermiculated pale grey next to quills on both vanes.	Central pair sepia rest paler and narrowly edged ashy-brown. Much damaged.

UNDER PARTS:

Breast.	A well defined breast shield, mainly bay to chestnut but with some very dark vinaceous reflections particularly lower third and on sides, no obvious spots or bars except laterally where fine barring.	A well defined breast shield of pale bay; shows some vinaceous reflections at lower third and lower edge of breast shield almost typical vinaceous of Wigeon. Colours richer laterally. Breast shows vestigial spotting.	A well defined breast shield of palest bay reflecting vinaceous, particularly at free edge below. Whole area freely and irregularly spotted and barred. Laterally colours stronger.
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♂ ad. May 18th
1963♂ ad. March 26th
1959♂ February 19th
1963
(killed by other ducks)
(Right)

(Left)

(Centre)

Belly.

Whitish suffused pale pinkish-bay, lower belly ditto with fine but with slight and very faint pale greyish vermiculations. This is particularly evident adjacent to the edge of the breast shield from where it extends broadly on both sides merging into the chestnut-bay of the flanks, which doubtless represents a very dilute derivation of the strong chestnut-bay underparts of *A. clypeata*.

White, lower belly shows faint greyish vermiculations.

White with tendency to spotting with palest-bay suffusion adjacent to breast-shield and at edges of flanks. Lower belly spotted pale sepia.

Vent.

White finely vermiculated pale greyish.

White faintly vermiculated greyish, stronger next to tail-coverts.

Whitish blotched pale sepia.

Under tail-coverts.

Black.

Black, tips of longest vermiculated greyish.

Black.

Rectrices.

Pale sepia.

Central pale sepia, rest whitish-sepia.

Pale sepia.

FLANKS:

Rich chestnut-bay, the posterior 2/3 vermiculated pale sepia and becoming greyer posteriorly. At root of tail whitish, some feathers finely edged black or vermiculated black.

Pale bay in places whitish, posteriorly greyish, vermiculated pale sepia. At root of tail white, some feathers finely edged black.

Anteriorly and adjacent to belly bay. Posterior 3/4 grey slightly tinged pale bay finely vermiculated palest sepia. At root of tail white finely vermiculated palest sepia, posteriorly white, some feathers finely spotted dark sepia.

WING: (upper surface)

Coverts.

Slate-grey (*loc. cit.* Pl. ii., 5) though slightly more blue, paler on greater coverts, very pale at speculum where edged white. Greater coverts dark drab broadly edged dark sepia, narrowly edged whitish bay.

Same as previous specimen but more white. Towards speculum drab to grey, barred blackish subterminally and terminally blackish and pale bay narrowly edged whitish.

Lesser coverts slate-grey, median and greater coverts more white, towards speculum very pale drab, subterminally blackish, terminally pale bay edged white.

	♂ ad. May 18th 1963	♂ ad. March 26th 1959	♂ February 19th 1963 (killed by other ducks) (Right)
	(Left)	(Centre)	
Speculum.	Dull greenish reflecting slightly bronze, at lower edge blackish, edged narrowly white anteriorly.	Brighter metallic green, slight bronze reflections at edges of feathers, at lower edge blackish, edged finely white anteriorly.	Metallic green, at lower edge blackish, narrowly edged whitish anteriorly.
Scapulars.	Sepia edged strongish bay, longest dull bluish-grey, on medial vanes bay to whitish.	Some bluish-grey lighter than in sibling. Longest black on outer vanes narrowly edged white, inner vanes sepia. Innermost paler and broadly edged palest sepia and whitish.	Some dull bluish-grey, rest blackish or sepia: very narrowly edged white.
Primaries.	Sepia, outer vanes darker.	Sepia, outer vanes darker.	Sepia, outer vanes darker.
Secondaries.	Sepia, outer vanes darker.	Sepia, outer vanes darker.	Sepia, outer vanes darker.
Fore edge.	Mottled greyish-drab and whitish.	Mottled greyish-drab and whitish.	Mottled drab and whitish.
WING: (under surface)			
Coverts.	Pale drab and white, slight pale bay tinge.	Drab and white, slightly tinged bay.	Drab and white minimal pale bay tinge at fore-edge of wing.
Axillaries.	White.	White.	White.
Fore edge.	As above (see upper surface.	As above (see upper surface.)	As above (see upper surface).
Primaries.	Whitish sepia to pale grey.	Whitish sepia to pale grey.	Whitish sepia to pale grey.
Secondaries.	Whitish sepia to pale grey.	Whitish sepia to pale grey.	Whitish sepia to pale grey.
HEAD AND NECK:			
Forehead.	Blackish, at mid-point flecked white.	Blackish, at mid-point whitish tending towards a band.	Narrowly blackish at base of bill, rest of forehead white flecked lightly blackish.
Crown.	Black to nape, above eyes and running back to nape reflecting dull metallic green.	Blackish dully reflecting purplish edges of feathers edged very narrowly with bay.	Purplish black feather edges faintly margined pale bay.
Nape.	Brighter metallic green.	Purplish black tinged bay, extending well down on to back of neck.	Pale bay transversely and longitudinally marked purplish-black.
Back of neck.	Metallic green, darkish markings where joining body.	Metallic green, darkish markings where joining body.	Pale bay flecked and striated greenish-black.

	♂ ad. May 18th 1963	♂ ad. March 26th 1959	♂ February 19th 1963 (killed by other ducks)
	(Left)	(Centre)	(Right)
Lores.	A broad white crescent at borders	A broad white crescent. at borders	A broad whitish crescent runs upwards to join white of forehead
Cheeks.	minutely flecked black. Rest of cheek blackish. A broad "bridle" giving rise to a "bimaculated" effect; in front of eye blackish: below, behind and above eye darkish bay flecked blackish. "Bimaculated" spot bay, flecked blackish.	minutely flecked black, upper end of crescent extends above mid-point of eyes. A narrow "bridle". Rest of cheek and extending down to front of neck white.	and white superciliary stripes. A broad "bridle" and behind this a pale bayish-white "bimaculation", flecked blackish: this merges into pale bay sides of neck and white of front of neck.
Sides of neck.	Dull dark metallic green.	White behind "bridle" to root of neck: obliquely above and extending as a wedge-shaped marking at edge of white, dusky, in centre metallic green and adjacent to body, bay coloured flecked dusky.	Strong metallic green, behind eye and over ear-coverts medium dark bay. Near root of neck some bay colour at bases of feathers.
Chin.	Dark sepia chin spot.	Chin and chin patch dusky bay.	Pale bay flecked dusky
Throat.	Sepia tinged bay, striated whitish becoming dusker lower down.	Throat and front of neck white tinged bay and freely flecked dusky-bay.	White heavily flecked dusky.
Root of neck.	A large triangular white spot, striated blackish at edges and some irregular blackish transverse striations.	White slightly flecked dusky.	Rest of neck ditto. at root of neck a large white triangular marking, with slight blackish bars, lower edge dusky.
SOFT PARTS:			
Iris.	Brown.	Brown.	Brown.
Bill.	Slate grey, nail blackish.	Slate grey, nail blackish.	Slate grey, nail blackish.
Tarsi, toes and webs.	Dull brownish ochre, joints, webs and nails dusky.	Dull brownish ochre, joints, webs and nails dusky.	Dull brownish ochre, joints, webs and nails dusky.
Anatomical sex.	♂	♂	♂

MEASUREMENTS IN MM.:

Wing.	262	255	262
Bill.			
Length from feather margin.	49	45.5	48
Width at nostrils.	18	17.5	15
Width at widest point.	19	19	20
Tarsus.	39.5	39	38.5
Middle toe with claw.	51	49.5	53.5
Tail	95	96	damaged.

The structure of the respiratory tracts of ducks and the taxonomic significance of such is dealt with in a paper by Johnsgard (1959/60)² as reflecting aspects of great importance in determining relationships. With this in view I submitted the bullae of the two sibling individuals to Dr. J. V. Beer for his opinion: on these and the specimen of 19th February, 1963, his comments (*in litt.* 10. vii. 63) are as follows: "The structure of the bullae in the three hybrids are remarkably similar, showing no more difference than one might expect from individual variation". Dr. Beer goes on to add that this supports the view that the Wildfowl Trust specimen is of the same parentage, *viz.* *A. penelope* x *A. clypeata* as the two sibling birds in which the parentage is definitely known. Presented with the tracheae only, he could not have worked out the parentage. In form the specimens show more characteristics of *A. penelope* than *A. clypeata*.

In addition to this data on the bullae, the skeletal measurements of the sibling of 18th May and of the two parent species are to be noted.

MEASUREMENTS IN MM. (taken from articulated pectoral girdles).

	<i>Hybrid</i> 18.5.63.	<i>A. penelope</i> .	<i>A. clypeata</i> .
Sternum.			
Crista.	96	95	89.5
Upper width.	41	41	36.5
Width at lower end.	47	55.5	42.5
Coracoid.	48	49	43
Scapula.	68	71	57.5
Furcula.	41	45	39
Femur	44.5	45	39.5

Discussion:

Elucidation of hybrid individuals is invariably of great interest and, without any doubt whatsoever, when the parentage is definitely known the interpretation is greatly aided. Information as to the resulting morphology of interspecific hybrids crossed reciprocally is as yet scanty but at any rate it is now known that such individuals in reciprocal crosses between *Aythya fuligula* and *A. ferina* the progeny are not similar, (J. M. Harrison, J. G. Harrison, E. H. Gilham in course of preparation).

In the present instance it is very significant that there is such a close similarity shown between three hybrids, two of which are siblings and of known parentage, and the third, an individual of unknown parentage, which on general morphological characters so closely matches the other two, that one would have no hesitation in making an identification of the parent species involved: this identification being further supported by an examination of the respiratory bullae. All these three individuals show a Wigeon dominance, their overall appearances suggesting Wigeon rather than Shoveler. Here again Dr. Beer commenting on the bullae writes "The specimens have the general form of *Anas* and show more characteristics of *penelope* than *clypeata*". This *penelope* dominance is also apparent in the skeletal measurements for those of the hybrid are mostly materially larger than those of *clypeata*, in fact nearly equalling those of *penelope*. Whether this marked Wigeon dominance can be interpreted as indicative of that species antecedent evolution or not it is, of course, impossible to say; all one can say, however, is that the bill of *clypeata* would appear to show a greater degree of adaptive specialisation which would be consistent with that species having a later evolutionary development.

The possible phylogenetic significance and bearing on affinity of the characters of bimaculation and bridling have been fully discussed in other communications, so need not be repeated here, except perhaps to stress that in the writer's opinion they are degrees of the same character which find their most frequent expression in certain species contained in the genus *Anas*: they are to be regarded as "signal" or specific unit characters.

A summary of instances of some of these characters is given in the *Bulletin British Ornithologists' Club*, September 1963 (Harrison J. M. and J. G. 1963).³ In this paper no fewer than 11 cases are given of characters presenting resemblances towards closely related species. These cases of course refer to such characters occurring in individuals in which, to the best of one's knowledge and belief, no question of interspecific hybridisation has occurred, and it is, of course, inconceivable that such striking recurring variations of a fixed pattern can occur in any haphazard manner.

Dr. Slizynski, to whom I referred this specific point, has kindly commented as follows:

"They must result from genes carried latently within a species group, which from some factor or mechanism at present obscure has become phenotypically visible and appears sporadically in individuals in some closely related species in which they are normally latent or suppressed", and that bimaculation and bridling are only different manifestations of the same recessive character.

The presence of a white neck ring (as shown by the bird on the left) is also seen to be involved in the same complex.

A similar white neck ring as a transient character is also recorded in some Northern Shoveler (Harrison and Harrison, 1959)⁴ and in a hybrid Red Shoveler x Northern Shoveler (Harrison and Harrison, 1963)⁵.

Summary:

This paper describes three examples of a cross between a male European Wigeon and a female Northern Shoveler. Two of the examples are of known parentage and age and are siblings; the third is a presumed hybrid of the same parentage and the same direction of the cross.

Certain individual variation shown by the three individuals is described, and comments upon a comparative study of the respiratory bullae are offered. The significance of certain osteological measurements is stressed.

The bearing of the characters shown by the three specimens in relation to certain other homologous recurring characters in other species of the Anatidae is discussed.

Acknowledgements:

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My sincere thanks are also due to Dr. Jeffery Harrison for valuable suggestions and comments, and to Dr. Pamela Harrison for the photographs herein reproduced.

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On *Fringilla cinnamomea* Lichtenstein, 1842

by P. A. CLANCEY

Received 14th October, 1963

Lichtenstein, *Verz. Samml. Säug. Vög. Kaffernl.*, 1842, p.16, described a bunting obtained in South Africa by his correspondent Ludwig Krebs as '*Fringilla cinnamomea* Licht. Fr. (*Pyrgita*); Notaeo rufo, nigro striolato, gastraeo helvolo, tectricibus alae et remigum secund. margine cinnamomeis. Cauda profunde emarginata rectricibus intermediis margine externo cinnamomeis. Longit. 5 poll.' The *Type* of this form is still in the collection of the Zoological Museum, Berlin. In dealing with the type-localities of new bird forms described, mainly by Lichtenstein, on the basis of skins obtained by Krebs, Stresemann, *vide Ann. Mus. Roy. Congo Belg.*, Tervuren, new series in 4°, Zool., 1, 1954, p. 81, has shown that the *Type* of *Fringillaria capensis cinnamomea* (= *Fringilla cinnamomea*) was taken by Krebs on the Likwa (= Vaal) River in the year 1838. Mackworth-Praed and Grant, *Birds of the Southern Third of Africa*, vol. ii, 1963, p. 712, attribute *Fringillaria capensis cinnamomea* to Stresemann, 1954, and declare that it is a *nomen nudum*, placing it in the synonymy of *Fringillaria capensis media* Sharpe, 1904, apparently having overlooked Lichtenstein's prior and full description of the form in his *Verzeichnis*.

Emberiza capensis cinnamomea (Lichtenstein), 1842; Vaal R., south-western Transvaal, is the earlier and correct name for the subspecies of the Cape Bunting at present known as *E. c. media* (*Fringillaria media* Sharpe, *Ibis*, 1904, p. 354: Deelfontein, near De Aar, central Cape Province, South Africa), which name must now be placed in its synonymy.

I should like to take this opportunity of thanking Professor Dr. Erwin Stresemann for his kind assistance in connection with this enquiry.

A new race of the Alpine Accentor, *Prunella collaris*, from Formosa

by H. G. DEIGNAN

Received 20th November, 1963

The Alpine Accentor of the highlands of Formosa is rare in collections and has, in the literature, consistently been referred to the subspecies *nipalensis* of the eastern Himalaya. Two adult males in Washington, collected by members and/or associates of the United States Naval

Medical Research Unit No. Two, show that, not surprisingly, the Formosan population is a distinct one; it may be named

Prunella collaris fennelli, subsp. nov.

Type: United States National Museum No. 472210, adult male, collected at 6,400 feet on the East-West Highway, at a point 20 miles east of Wu-sheh, Nan-tou Hsien, Formosa, on 16th April 1959, by Chester M. Fennell; original number BF 606.

Description: Similar to *Pr. c. nipalensis*, but separable by having the ground colour of head, neck, and breast deeper in tone and more greyish, less brownish; by having the red-brown that washes the flanks and sides of the belly deeper in tone, chestnut rather than ferruginous; and by having the upper tail-coverts deep ferruginous, rather than brown with little or no ferruginous wash.

Distribution: The central highlands of Formosa.

Remarks: The two Formosan specimens have been compared with ten of *nipalensis*, and with 28 of *talifuensis*, described from north-western Yunnan. This last differs from both *nipalensis* and *fennelli* in having the ground colour of head, neck, and breast paler and more greyish, and in having the ferruginous (not chestnut) of the flanks more restricted (scarcely invading the sides of the belly).

Acknowledgements: For the loan of comparative material, I am indebted to the authorities of the Museum of Comparative Zoology, Cambridge, Massachusetts, of the Yale Peabody Museum, New Haven, Connecticut, of the American Museum of Natural History, New York, and of the Chicago Natural History Museum.

**A further note on an
aberrant Yellow Wagtail, *Motacilla flava flava* Linnaeus
obtained in British Cameroons**

by WILLIAM SERLE

Received 25th November, 1963

Mr. C. J. O. Harrison in a recent paper (*Bull. B.O.C.* 83, 1963: 95) speculates on the possibility that the abnormal colour shown by a Yellow Wagtail, *Motacilla flava flava* collected in British Cameroons (*Bull. B.O.C.* 79, 1959: 2) might have been a temporary change due to nutrition rather than a permanent mutation.

Mr. Harrison's surmise is well founded. The wagtail, which is in fresh plumage, was collected on the foreshore at Victoria, British Cameroons, at a place where an open drain from an oil palm mill emptied on to the shore. The effluent from the mill contained much red palm oil which overspread the foreshore at this point. If a Yellow Wagtail can utilise carotene, there was certainly plenty available here, and the bird could hardly fail to ingest some in the course of feeding.

The circumstantial evidence is fairly strong that the colour change in the specimen is due to a dietary excess of carotenoid derived from the Oil Palm, *Elaeis guineensis*.

10 FEB 1964

CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

Proofs must be returned without delay. No changes may be made at this stage, other than corrections. At the discretion of the Editor, the Club will pay for a reasonable number of monochrome blocks, which the contributor may retain for his own use.

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Other correspondence should be addressed to the Hon. Secretary, Dr. J. G. Harrison, "Merriewood", St. Botolph's Road, Sevenoaks, Kent.

DINNERS AND MEETINGS FOR 1964

18th February, 17th March, 28th April (A.G.M.), 19th May, 15th September, October (with B.O.U.), 17th November, 15th December.

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BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB



Edited by
JOHN J. YEALLAND



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BULLETIN
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BRITISH ORNITHOLOGISTS' CLUB

Volume 84

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The six hundred and fourteenth meeting of the Club was held at the Rembrandt Hotel, London, on the 18th February, 1964.

Chairman: Mr. R. S. R. Fitter

Members present, 18; guests, 6.

Mr. Colin Osman spoke on the racing pigeon, its management and methods of training in this country.

Some observations on pigeons in Addis Ababa

by L. R. PITWELL AND DEREK GOODWIN

Received 2nd December, 1963

INTRODUCTION

For the past year Mr. Pitwell, who works at the University College of Addis Ababa, has been corresponding with me (D.G.) about the pigeons in and around Addis Ababa. Many of his observations seem not to have been previously recorded, and to be worth publishing. The actual field observations on the birds were all made by Pitwell: Goodwin is responsible for comparisons with behaviour of other pigeon species (or the same species elsewhere), speculations and references. The general distribution of the species in the area is not discussed, as this has been dealt with previously by Guichard (1950).

A point that should be emphasised is that Addis Ababa is a town where feral populations of *Columba livia* have not yet established themselves. Should they do so in the future the effect on other species would be of interest.

NOTES ON SPECIES

Columba albitorques Rüppell. White-collared Pigeon

Very common in and near Addis Ababa although within the city area possibly less numerous than *Columba guinea* and *Streptopelia semitorquata*. Always near buildings, cliffs or gullies where it breeds and roosts. In the course of a recent journey from Addis Ababa to the Shoan Plateau between Entoto and the Blue Nile this species was seen only near suitable rock formations or in villages whereas *C. guinea* was seen everywhere.

Nests on sheltered ledges of buildings. Freely enters buildings and nests inside them when given the opportunity. From the readiness with which it does this there can be no doubt that in natural cliff sites it will nest well inside caves or dark cavities, as does *C. livia*. Has been observed nesting or incubating from September to January.

Feeds on the ground within the town, in market places, the university campus grounds and other open spaces as well as in fields. Besides grain and other seeds it readily takes bread and similar artificial foods, at least many individuals do so. At feeding and resting places often forms large mixed flocks with *C. guinea*. These flocks may fly together and not separate when, for example, something has scared them all into flight. This only happens where large numbers of both species have gathered together at a good feeding ground or some densely populated cliff. Otherwise both species are usually in pairs, small mono-specific groups, or sometimes single birds.

A most striking feature about this species is that in flight it makes, with each flap of the wings, a whistling, creaking sound rather like a creaking door hinge. No other local pigeon makes such a noise which is characteristic of *C. albitorques* and heard whenever it flies. It can also fly vertically up the face of a cliff or hover in front of a crowded or small ledge on which it wishes to alight. These forms of flight have not been seen in *C. guinea* although *C. livia* can fly vertically and hover in a manner similar to but perhaps less highly developed than that of *C. albitorques*. The display flight of the White-collared Pigeon consists of gliding followed by an upward swoop; it is not accompanied by loud wing-claps such as characterise the display flights of most other pigeons.

Columba guinea Linn. Speckled Pigeon

Probably the most numerous species in Addis Ababa. In mixed flocks at village markets it usually slightly outnumbers *C. albitorques*. Nests on sheltered ledges on the *outsides* of buildings. The sites chosen are similar to some used by *C. albitorques* but *C. guinea* never nests inside a building, in an attic, or on an internal cornice or similar place as *C. albitorques* often does nor has it been seen to fly under arches or to enter buildings. It sometimes nests in sites previously used by *C. albitorques* but there is no evidence of either species forcibly displacing the other from a nesting site.

Seen on nests in March and April and display flights and copulation seen also in September and October among birds that were probably nesting or about to do so. Seen feeding both in open country and in market places. In the latter many individuals eat bread as well as grain and other seeds. Does not perch on small projections, narrow ledges or wires running near buildings as *C. albitorques* readily does.

Sometimes in flocks of twenty or more but these are often mere aggregations at feeding areas and the birds arrive and depart in pairs, small groups or singly.

In display flight the wings are clapped with wide downward strokes similar to those of *C. livia*. Display, voice and the copulation ceremony similar to what has been previously described for captive specimens (Goodwin 1956).

Columbia livia Gmelin. Rock, Feral and Domestic Pigeons

Neither wild nor feral populations of this species occur in Addis Ababa. A few domestic pigeons occur in the neighbourhood of the former Guenet Luel Palace west stables. They are, presumably, fed by people and have not been seen further afield than the main palace, the adjacent stables and the garages. They have never even been seen to cross the paddock to the north stables only 200 metres away.

Streptopelia decipiens (Hartlaub and Finsch) Mourning Collared Dove

Abundant in the wooded residential districts of Addis Ababa but not common in the more treeless parts. Part of the population is absent from June to August, presumably having migrated to lower, drier areas, but returns before the rains end.

Only observed nesting and perching in trees. Often seen singly. It seems unlikely that Cheesman (1935) could have overlooked this species and, if not, then it must be a relative newcomer to the area since he did not record it. Between 1945 and 1948 Guichard (1950) found it abundant.

Streptopelia semitorquata (Rüppell) Red-eyed Dove

Not as numerous as the previous species but quite common and its loud, distinctive advertising coo is often heard. It is rarest from June to August when many individuals have, presumably, gone elsewhere. Also found primarily in wooded areas but habitually perches on bridges on the Addis Ababa-Nekemti road. All nests seen have been in trees.

Streptopelia lugens (Rüppell) Dusky Turtle Dove

We consider it regrettable that many reference books use the very misleading name "Pink-breasted Dove" for this species, the only African *Streptopelia*, except *S. reichenowi*, which has *not* a pink breast. In life it looks predominantly dark bluish with black neck patches and conspicuous orange-brown markings on the inner secondaries.

Present in Addis Ababa but commoner outside the city where it is found in clumps of trees close to villages. Not seen from June to August when it may migrate. This species and *S. semitorquata* have both often been observed feeding on the ground under cover of bushes and trees, presumably on seeds, and also taking young leaves from a succulent shrub.

No other species has been identified by L. R. P. in Addis Ababa although *Columba arquatrix*, *Streptopelia capicola*, and *S. senegalensis* have been seen in nearby areas.

DISCUSSION

The presence of numerous individuals of three *Streptopelia* species is hardly surprising in view of the abundance of doves of this genus throughout most of Africa and the fact that Addis Ababa is rich in trees and shrubs. Except in the small central shopping area, there are trees everywhere.

More surprising is the co-existence in large numbers of two *Columba* species of rather similar size and habits; the widespread *C. guinea*, which occurs throughout most of Africa south of the Sahara except in forest regions, and the endemic *C. albitorques* which is entirely confined to Eritrea and central Ethiopia. This latter species would appear to be as highly adapted to cliff and cave dwelling as is the Rock Pigeon *C. livia*. In Addis Ababa it clearly fills the ecological niche commonly taken in towns elsewhere by feral populations of *C. livia*. If strayed domestic pigeons become well-established in Ethiopian towns they might constitute a serious, if long-term, threat to the continued existence of the White-collared Pigeon.

The apparent disinclination of *C. guinea*, in Addis Ababa, to nest inside buildings suggests that some degree of ecological separation may have evolved here. Elsewhere *C. guinea* has been recorded nesting inside roofs and outbuildings (Jackson 1938). It may, however, only reflect preferences where nest sites are abundant, as there appear to be many more suitable nest sites in Addis Ababa than are occupied. When feeding at market places the two species take the same foods and must be in competition and it would be interesting to know whether they take different foods when in the fields. Since both are ground-feeding, primarily seed-eating species which differ only slightly in size, there may well be competition here also. The overlap in food and nesting requirements between the two certainly seem likely to be much greater than between the Wood Pigeon *C. palumbus* and feral pigeon *C. livia* in London (Goodwin 1960) where the former species is largely a tree feeder and only artificial foods and a few temporarily superabundant natural foods are taken in quantity by both.

At the moment, *C. albitorques* and *C. guinea* appear able to co-exist successfully in Addis Ababa and elsewhere in Ethiopia. If this is so then, presumably, their requirements must differ or else, in spite of their apparent abundance, they are being kept down by predation below the numerical level at which competition between them would operate. We may, on the other hand, be witnessing a phase in the process of inter-specific competition, which will end in the replacement of *C. albitorques* by *C. guinea*. I, (D.G.) can recall only two other cases of the co-existence of two related *Columba* species of (so far as is known) similar feeding habits. In north-eastern Tibet, the Snow Pigeon *C. leuconota* Vigors and the Eastern Rock Pigeon *C. rupestris* Pallas, roost and breed at different altitudes but feed in the same fields in the cultivated areas (Schäfer 1938). They are known to take the same cultivated grains but it is not recorded to what extent the wild foods taken by them differ. In Ulan Bator, in Mongolia, one has an even more surprising situation (Grummt 1961). Here, both the Eastern Rock Pigeon and feral domestic pigeons co-exist in numbers and show no apparent difference in ecology. The situation in Ulan Bator may be a very temporary one, however, in view of the recent growth of that city.

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Taxonomic position of the genus *Culicicapa* Swinhoe (Muscicapidae)

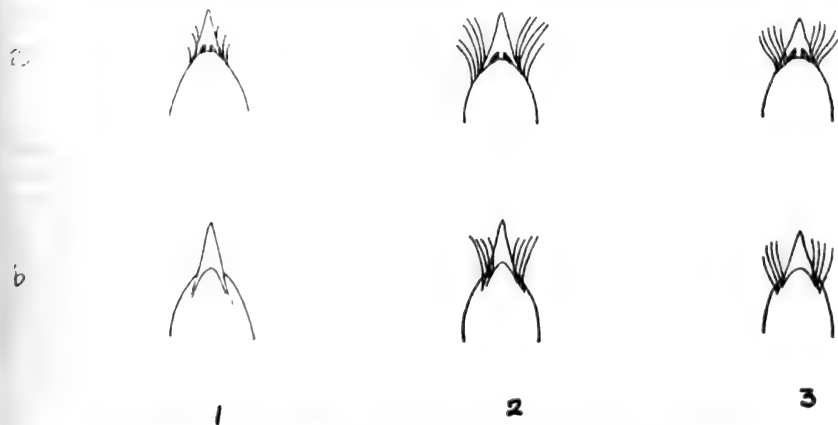
by SHANE A. PARKER

Received 10th December, 1963

Culicicapa contains two predominantly yellow-green and bright yellow flycatchers, *C. ceylonensis* (Indo-Malaya, China) and *C. helianthea* (Philippines and Celebes). Vaurie, (1953) in a paper dealing with the Muscicapini, concludes that *Culicicapa* might prove referable to the Rhipidurini upon further study. The purpose of this note is to show that there are adequate grounds for including *Culicicapa* in the latter tribe.

Vaurie (p.531) shows that *Culicicapa* differs from all muscicapine genera in the arrangement and number of the rictal setae. This feature of *Culicicapa* is repeated in all species of *Rhipidura*.

As regards habits, Vaurie considers *Culicicapa* to be far more restless and gregarious than the rest of the Muscicapini. Salim Ali (1949) describes the ceaseless acrobatics and foraging of *C. ceylonensis*. Smythies (1953) also notes tail-fanning in this species. According to Heinroth (in Stresemann 1940) *C. helianthea* is similar in its actions to its congener. Though differing from the true flycatchers in the mode of feeding, the species of



Arrangement of rictal setae (1) *Muscicapa* (2) *Rhipidura* (3) *Culicicapa*
a. Dorsal view b. Ventral view

Culicicapa match those of *Rhipidura* in this respect; their actions are similar to those recorded by Whistler (1949) for *R. aureola*, a typical fantail.

The similarity between *Culicicapa* and *Rhipidura* is emphasized by the colour and pattern of their eggshells, a point which does not seem to have been referred to previously. Apart from the immaculate pale blue or white eggs of such species as *Ficedula hypoleuca*, *F. albicollis* and *F. strophitata*, the eggs of the Muscipapini are whitish, greenish or bluish in ground colour, spotted, blotched or clouded with red-brown, umber and grey generally over the entire shell. The eggs of the Rhipidurini on the other hand are highly distinctive. Save those of *R. hypoxantha*, which have a solid cap of pinkish-brown at the large end, the eggs of all species of *Rhipidura* are pale or rich cream in ground colour, with a ring around the large end or the equator of brownish and greyish spots and blotches. Markings are often present over the rest of the shell, as in *R. fuliginosa*, but are never as heavy or concentrated as in the ring. The eggs of *Culicicapa ceylonensis*, of which there is a long series in the collections of the B.M. (N.H.), are identical in colour and position of markings with those of *Rhipidura*.

To summarize: in the arrangement of the rectal setae, mode of feeding and colour of eggs, *Culicicapa* bears a closer resemblance to *Rhipidura* than to any of the muscipapine genera, and because of this it seems appropriate to include it in the tribe Rhipidurini rather than in the Muscipapini.

I should like to thank Mr. J. D. Macdonald of the Bird Section of the B.M.(N.H.) for reading through the ms. of this note.

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Note on the Paradise Flycatcher *Terpsiphone viridis* (Müller) in southern Africa

by WALTER J. LAWSON

Received 11th December, 1963

In a paper on the southern African races of *Terpsiphone viridis* I showed (Lawson 1962) that three races must be admitted as occurring in southern Africa, these being *T.v. granti* (Roberts), 1948: Duivenhoek River, Swellendam, Cape Province, the southern race; *T. v. violacea* (Grant & Mackworth-Praed), 1940: Fort Hill, Nyasaland occurring throughout the southern and central Moçambique, northern and western Transvaal, Bechuanaland Protectorate, northern South-West Africa, southern Angola, Southern Rhodesia, Nyasaland and eastern Northern Rhodesia, and *T. v. plumbeiceps* Reichenow, 1898: Malanje, Angola, which ranges through northern Angola, western Northern Rhodesia and the south-eastern Congo. *T. v. violacea* and *T. v. plumbeiceps* were differentiated from one another chiefly by the former having white and the latter rufous under tail-coverts.

However, Dr. Finn Salomonsen expressed the opinion (Salomonsen 1962) that *T. v. violacea* must be regarded as a synonym of *T. v. plumbeiceps* as, of the specimens of *plumbeiceps* examined by him (Salomonsen 1949) from the type-locality, two had white under tail-coverts, four yellowish and one cinnamon. He therefore appended the name *T. v. plumbeiceps* to the populations with white and yellowish under tail-coverts, using the name *T. v. subrufa* Salomonsen, 1949: Kapulo, south-eastern Congo, for the populations with cinnamon under tail-coverts of northern Angola and south-eastern Congo. Chapin (1953) placed *subrufa* as a synonym of *plumbeiceps*.

The correct allocation of the names available for these white or cinnamon vented birds can only be determined by reference to the type-specimen of *plumbeiceps*, which race was based on specimens from a zone of intergradation between a race with white and one with cinnamon under tail-coverts. The colour of the under tail-coverts of the type-specimen of *plumbeiceps* would reveal from which population it was drawn, and consequently to which the name must be attached.

Enquiries made of Herr G. Mauersberger of the Zoological Museum, Berlin, who kindly examined the type-specimen of *T. v. plumbeiceps*, which is housed in the collection in his care, revealed that it is a male, collected by von Mechow on the 9th October, 1879 near Malange, Angola, and that it has purely white under tail-coverts.

As a result of this finding the name *T. v. plumbeiceps* must be used for the populations called *T. v. violacea* in my 1962 paper with white under tail-coverts, and the name *violacea* must be placed in the synonymy of *T. v. plumbeiceps*. In addition the name *T. v. subrufa* must be used for the populations with yellowish or cinnamon under tail-coverts of northern Angola, the south-eastern Congo and western Northern Rhodesia, called *T. v. plumbeiceps* in my previous paper.

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The re-discovery of an African owl *Bubo vosseleri*

by R. E. MOREAU

Received 31st December, 1963

This note has been made possible through the kind co-operation of Herr G. Mauersberger of the Berlin Museum, to whom all the information about the Berlin specimens is due, and of Mr. J. J. Yealland, Curator of Birds at the London Zoological Gardens.

In *J. Orn.* 1908: 139 Reichenow described as *Bubo vosseleri* an owl received from Dr. Vosseler of the Biologisches Institut, Amani, which is at about 3,000 ft. in the East Usambara Mts. of north-eastern Tanganyika, as follows (my translation):

“Very like *Bubo poensis*, but distinguished by ochre-yellow face and by blackish brown spots on the sides of the upper breast; the shoulder-band, composed of white spots, is very distinct.”

The date the type was obtained by Vosseler is not stated but on 15th October 1906 the Berlin Museum registered another, juvenile, bird, also from Amani, understood to belong to the same species. This juvenile differs much from the adult and has not been described. No ecological information at all is forthcoming about these specimens, and there is no evidence that any later specimen has reached a museum or that any first-hand information about the bird has been published.

In view of the unsatisfactory nature of the published description of the type (sex unknown), it seems worth while to publish the following details of both the type and the younger bird, kindly supplied by Herr Mauersberger:—

“Head: crown and ‘ears’ orange brown heavily spotted with blackish brown. (In the centre of the crown is one white feather, perhaps a relic of juvenile plumage.)

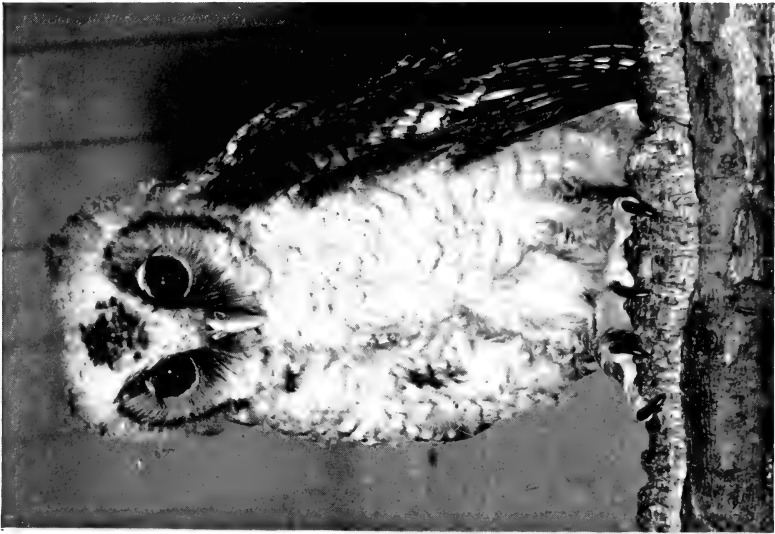
“Upper parts: lighter and brighter than in *poensis*, the individual feathers being more orange brown, with a darker line. The lesser wing-coverts are very dark blackish brown, their orange bars being more and more reduced towards the carpal joint. The great wing-coverts of the secondaries are like the feathers of the mantle, of the primaries much darker brown, the light bars being very narrow and much duller. On the outer primaries the dark bars are extended towards the tip, the brown parts being much duller and less contrasting than on the secondaries and even on the inner primaries. The white shoulder patch is very conspicuous, being formed by the scapulars. Some of the outermost secondary coverts and some primary coverts are also tipped with white, but this is not conspicuous enough to form anything like a wing bar. The rectrices are much like the inner primaries in colour and pattern.

“The underparts are generally lighter and brighter than in *poensis*, the vane being silky white and the bars of the individual feathers being narrower, lighter, more orange brown with a darker line. Many feathers on the centre of the underparts show distal orange-brown patches, reaching proximally beyond the last bar, and in some feathers the last bar is broader and darker. On the sides of the upper breast most of the feathers have dark brown distal patches, which give the impression of spots, as originally described by Reichenow.”

According to Mauersberger, the young specimen in Berlin, which is just completing wing moult, is on the whole like the adult. “In general it is lighter than immature *poensis*. The head and neck are yellowish white with slight sepia-brown spots; the face yellowish orange buff, with a very conspicuous brownish black line around the face, beginning with the superciliary stripe, and less distinct, greyish brown, on the throat.

“The underside, the wing coverts and the upper parts have the feathers white with two (on breast) or three (on back) narrow dark-brown bars that are edged with orange buff. On the mantle the bars are broader and lighter, the feathers showing more orange.”

On 28th April 1962, some 55 years after the original specimen, a young



Photographs: The Zoological Society of London



Bubo vosseleri at approximately six months old.

owl was taken to Dr. G. Pringle, Director of the East African Institute of Malaria, at Amani, which he recognised as probably *Bubo vosseleri*. The finder, Mr. Gabriel Joseph, has stated that he found the bird, able only to flutter a few yards, in the high forest surrounding a neighbouring tea estate named Ndarema, that is, at an altitude of a little over 3,000 ft. After keeping it for a few weeks Dr. Pringle transferred the bird to the

London Zoo, where it now is. In captivity this young bird has shown itself tame, confiding and consistently alert by day. This last may perhaps be a character of the species, if our record of 6.9.31, quoted below, really relates to this owl, because Dr. Pringle has been told of an owl of this type on the wing in an estate near Amani by day. But during his years of residence at Amani Dr. Pringle has heard a "loud, repeated, guttural but resonant grunt from the forest canopy" on only "two evenings about an hour before sunset".

When examined on 13th September 1962 the new arrival in London agreed with the Berlin juvenile in having the whole back and underparts white with widely spaced narrow dark-brown bars, while, as seen in the



Photograph: The Zoological Society of London
Bubo vosseleri at approximately 1½ years.

photographs, the white tips of the greater coverts produced a very distinct wing-bar. The "ears", too, were white with buff tips; the strong dark-brown border of the orange-brown facial disc was reinforced by a blackish brown patch on the upper, inner, side of the eye. The eyes were deep warm brown, the pale blue eyelid naked, with long black lashes. The very strong black nasal bristles extended to the tip of the beak, which was pale bluish horn, becoming yellowish at the tip. The feet were very pale

bluish, the tarsi feathered tawny, barred with very dark brown. The under wing-coverts were pale tawny, without marking. In April 1963 this bird, then a little over a year old, had lost its juvenile white plumage and the blue of its beak and feet had faded to off-white. It differed from the Berlin adult in having the white on the tips of the wing-coverts so prominent as to form a conspicuous wing-bar. By the end of November, when I examined the bird again with Mr. Yealland the white wing-bar had disappeared. The only white remaining in the plumage was a single much-worn pure white feather in the middle of the forehead (compare the description of the type in Berlin) and a couple of whitish scapulars. It is therefore evident that the type, on which the original description was based, is sub-adult.

In what we now know to be the adult plumage *vosseleri* is very like *poensis* indeed. Comparison was facilitated by the fact that specimens of the two are caged alongside one another in the London Zoo. The series of *poensis* in the British Museum shows considerable variation and the Zoo specimen is a particularly richly coloured bird. The only significant difference shown by *vosseleri* is that the blotching on the breast is heavier and the bars on the underparts more widely spaced. It may be added that in most of the series of *poensis* skins in the British Museum two or three mainly white feathers appear in the inner wing coverts or the scapulars. According to measurements kindly supplied by Mauersberger, the type has wing 346 mm. in length and the younger bird 299. Neither is sexed, but the Amani birds are probably bigger than *poensis*, the measurements of which are given by Bannerman as 276–302 for males, 277–321 for females. On the whole, then, it appears that the name *vosseleri* may be retained provisionally for a subspecies of *poensis* on characters of size and pattern of underparts.

It is a curious fact that Mackworth-Praed & Grant (1952, African Handbook (1) 1: 661), writing at a time when only the Berlin specimens were in existence, give a description of *vosseleri* that omits any mention of the white bar on the shoulder, which is a feature of the type and was prominent in the original description; but it does not seem possible that they could have known that the white would be lost with age. Their sketch is misleading for it omits the heavy dark blotches which are so prominent on the breast. Mackworth-Praed & Grant go on to state that the bird is "only recorded as inhabiting thick forest in the Usambara Mts.", that its food is "squirrels, galagos, bats and insects" and that its call is "a higher pitched hoot than that of other eagle owls". In fact it seems that no definite information about this owl was available to these authors: the statements about food and call were transcribed from what had been published about *poensis* and the statement about the forest habitat was based on reasonable inference.

We still have no first-hand information about the biology of *vosseleri* in the wild. The only area from which it is known is still at about 3,000 ft. in the East Usambara Mts., a deeply dissected plateau covered with heavy forest within sight of the Indian Ocean, in north-eastern Tanganyika. This is separated by some 800 miles from the nearest known *poensis*, in the north-eastern Congo (Ituri). The area where *vosseleri* has been found in the East Usambaras is reached from below by some typically lowland species and from above by some that are typically montane. Hence we still

do not know to which category this owl belongs. By analogy with *Bubo poensis*, *vosseleri* might be expected to be lowland. So far the bird in London is not known to have called. When it does so, it is hoped that the noise can be tape-recorded and that opportunities will occur for playing it back in suitable East African localities, to see whether a response can be elicited. I should think that, apart from other forested areas in the Usambaras good places to try would be in the Ulugurus and in the Ngurus (where I understand that Mr. J. G. Williams saw an owl he thought might be of this species). In all the time my wife and I spent at Amani from 1928 to 1946 we were never sure that we saw this owl. However, with the new specimen before us we think there is not much doubt that a big young owl whose head we could just see in a hole high up in a forest tree on 20th December 1930 was *vosseleri*, for according to my note its head was "very white, eye-ring black, bill bluish". Again, on 6th September 1931 I find a note that we saw a big brownish owl with black on the face fly across a road through deep forest at mid-day, but we do not seem to have heard the sort of deep notes one would associate with a *Bubo* except during one period, March–May 1929.

The occurrence of *Neophron percnopterus* in Northern Rhodesia

by R. J. DOWSETT AND A. J. TREE

Received 17th December, 1963

The Egyptian Vulture, *Neophron percnopterus* (Linn.) is of extremely local distribution in eastern and southern Africa, being confined largely to very arid areas. It is of interest therefore to record that individuals were identified in the Western and Eastern provinces of Northern Rhodesia in May and June of 1963. Although both are sight records, they are well authenticated and appear to be the first records of this species from the territory.

On 9th May 1963, Tree observed a bird of this species—in almost full adult plumage—at Ngosa Farm on the Kafue River in Western Province (12.18'S 27.28'E). Very close views were obtained and it was noted that the tail seemed to be in moult, the outer feathers being white with the rest a mixture of light grey-brown and white. The bird appeared from the north and was watched in flight for some two or three minutes before it circled and headed off to the north-west. Tree was struck especially by the way it carried its wings when gliding, at an angle, not unlike the Bateleur Eagle, *Terathopius ecaudatus*.

Then, on 3rd June 1963, Dowsett observed a bird in full adult plumage at Chapita Dam (13.55'S 32.18'E) in the Eastern Province. The bird was watched circling for five minutes in company with eight White-headed Vultures, *Trigonoceps occipitalis*. Its build and shape were much like a Hooded Vulture, *Necrosyrtes monachus*, except that it had a noticeably wedge-shaped tail. The black on the primaries and secondaries contrasted strongly with the almost white body feathers and with the rest of the wing, and the bird could be picked out in flight, even at some distance, with ease. Its black primaries, wedge-shaped tail and lack of black on the mantle distinguished it from the Palm-nut Vulture, *Gypohierax angolensis*.

It is perhaps worth noting that on 12th February 1960, Tree had observed what may have been a near-adult bird of this species in company with various migratory raptors near Mpika in the Northern Province of Northern Rhodesia. However it is felt the identity of this bird was not established beyond all doubt. Apart from this, there is no indication that this bird has otherwise occurred in the territory at any time in the past.

For southern Africa Mackworth-Praed and Grant (1962) give the distribution as "throughout, except Belgian Congo, Northern Rhodesia and Nyasaland". However, there is in fact no evidence that it has ever occurred in Southern Rhodesia (Smithers *et al.* 1957) nor in Bechuanaland. Furthermore, it seems possible the species no longer occurs in South-West Africa, although further investigation is needed (Benson and Irwin, in press). Andersson, in Gurney (1872) recorded it as not uncommon in Damaraland and Namaqualand. However, Macdonald (1957) makes no mention of it and there seem to be only two records within the last forty years, namely a specimen collected by Bradfield at Quickborn in 1923 and a sight record from Otjiwarongo in 1938 (Hoesch and Niethammer, 1940). From Angola there is only a single, old record of a specimen from southern Mocamedes (Traylor, 1963).

Elsewhere in southern Africa it is now nowhere common. McLachlan and Liversidge (1957) report that the species is now rare in Cape Province, and Voous (1960) suggests it is nearing extinction in southern Africa as a whole. Irwin (1963) has rejected its reported occurrence in coastal Portuguese East Africa as being highly improbable.

In East Africa, there are recent acceptable sight records from the Ngorongoro crater, northern Tanganyika. Benson and White (1960) give a record by Vesey-FitzGerald (actual date 20th January 1959) and Benson (Benson and Irwin, in press) saw several in the area on 10th September 1961. On 30th October 1958 a nest of this species containing a single fledgeling was found at Kwakuchinja in the Mbulu district of Tanganyika (Thomas, 1960). Apart from these, however, there appear to be no records from East Africa south of Kenya, although Williams (1963) suggests it does occur in small numbers in Tanganyika. In much of Africa north of the equator it would appear to be locally not uncommon.

It is also worth recording that Curry-Lindahl saw four *N. percnopterus* in the Kagera National Park, Ruanda-Urundi, on 28th January 1952 (Curry-Lindahl, 1961). This record was not mentioned by Benson and Irwin (in press) as the authors did not, at the time, have access to Curry-Lindahl's paper (C. W. Benson, pers. comm.)

As *N. percnopterus* would appear to be considerably more common in east Africa, north of Tanganyika, than in southern Africa, and especially in view of the recent records from Tanganyika itself, the Northern Rhodesian birds seem in all probability to have been wanderers from east Africa. Whether or not many Egyptian Vultures winter in tropical Africa (Voous, 1960) is at present merely a matter for conjecture.

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Further breeding records from Northern Rhodesia (No. 4)

by C. W. BENSON AND CHARLES R. S. PITMAN

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The same considerations apply in this paper as referred to in the introduction to No. 3 (Benson & Pitman, 1963).

Egretta intermedia brachyrhynchos (Brehm)

G. Wedekind found a mixed colony of about 50 nests of this species, 50 of *Phalacrocorax africanus* and 25 of *Anhinga anhinga*, on the Kafue River at 14° 18' S., 27° 14' E., 8th April, 1963. The nests of the three species were completely intermingled, some being only four feet above water-level; others as much as 12 feet. One egg taken from a C/3 of the egrets measures 51 x 36 mm., and was fresh. But some clutches (mostly C/3) judging from their staining were well incubated, and there were some young in down, even perhaps as much as three weeks old.

Pitman in his Faunal Survey of Northern Rhodesia (1934: 177) in fact records nesting in the Lukanga Swamp at the end of March. A C/2 fresh was collected for him on 27th March, 1932, measuring 52.3 x 39.0 and 54.0 x 38.4 mm.

G. F. T. Child found a colony of 12 nests in a partially submerged Acacia tree, on the Northern Rhodesia side of the Kariba Lake, near Binga at about 17° 37' S., 27° 16' E., on 30th October, 1959. There were one or two young per nest, in varied stages of development. For the only other positive record of this species breeding locally (by R. I. G. Attwell), see Benson & Pitman (1963).

Butorides rufiventris (Sundevall)

W. F. Bruce-Miller observed nest-building in a dense reed-bed at a dam on his farm in the Choma District at 16° 39' S., 27° 01' E., 20th January, 1963. On the 29th 13 birds were flushed from a compact area about 10 x 20 yards, in which there were at least four nests, one of which contained four eggs; another one. To avoid disturbance no further observations were made. E. L. Button observed a single nest in the Itawa Swamp containing young almost fledged, late March, 1945. For other recently recorded breeding localities, see *Bull. Brit. Orn. Cl.* 78, 1958: 165 and Benson & Pitman (1963). At the locality Ngoma, Attwell and J. B. Shenton have reported egg-laying as early as March, in colonies numbering up to 30 pairs, clutch-size up to three.

Anastomus lamelligerus lamelligerus Temminck

D. Vesey-FitzGerald, while flying over the Kafue Flats on 15th October, 1962, on locust investigations, at about 15° 37' S., 27° 20' E. observed a colony extending over several acres. The nests containing eggs were clustered in groups, and were piles of dry herbage in an open, flooded area.

Previous records for Northern Rhodesia and Nyasaland, summarised by Benson *et al.* (in press), indicate egg-laying from January to July only. The explanation of this late date may be the exceptionally high floods on the Kafue Flats in 1962, large areas remaining inundated throughout the dry season which in a normal year would be dry by September.

Bostrychia hagedash brevirostris (Reichenow)

J. M. C. Uys inspected the four following solitary nests on the Kafue River around 14° 55' S., 25° 52' E. on 17th December, 1962, contents as follows:—

- (1) Two nestlings and one infertile egg. Nestlings about 14 inches long, covered in grey-black down, blacker on crown, remiges starting to emerge.
- (2) Fresh nest, still empty.
- (3) Two eggs, parent sitting tightly.
- (4) Two eggs, one chipping open.

Uys found another nest containing eggs (number not recorded) on the Kafue at 14° 42' S., 26° 15' E. on 6th April, 1963. All five nests were five to eight feet above the water-level, in *Syzygium* trees (one in a *Diospyros mespiliformis*) overhanging the east bank of the river, sited so that only in the late afternoon could any rays of the sun reach them. They were frail platforms of diameter about 12 inches, made of *Syzygium* twigs, sparsely lined with *Oryza* grass.

Many dozens of nests found by C.R.S.P. in Uganda have invariably been placed in shade, often in really deep shade.

P. S. Wright has described a similar nest from the Kafue at 15° S., 26° E., on 11th February, 1963, 10 feet above the water. It contained three nestlings in black down, with remiges starting to emerge, showing bronzy reflections as in adults. There were still three nestlings on the 24th, but, only two on the 26th and one on 2nd March (note the remarks by Skead 1951 on mortality among nestlings). They had irides dark brown, not

white as in adults. When being fed they kept up a continuous "chirr, chirr, chirr, . . .". Each awaited its turn to be fed, and there was no evidence of competition.

Other recent breeding records are from the Zambezi at Livingstone, in trees overhanging the river, as follows:— C/3 (one fresh, two about three days set), 26th November, 1961 (V. J. Barnett); two feathered young, still in nest, 26th April, 1962 (E. A. Zaloumis). The nests were respectively 20 and eight feet above water-level.

Assuming that the figures of incubation and nestling periods (26 and 33 days respectively) in Skead (1951) are locally applicable, and using not only the above data but also those in the Check List and in *Bull. Brit. Orn. Cl.*, 81, 1961: 157, egg-laying apparently occurs in every month from August to March inclusive. The season may be much more extensive than Skead found in the Cape Province.

Dendrocygna bicolor (Vieillot)

Coll. oviduct egg, Mongu, 5th May, 1962 (Zaloumis). Egg ivory-white, smooth, 53.8 x 40.9 mm.

Accipiter melanoleucus melanoleucus Smith

Coll. one fresh egg (typical) from a C/3, Lusaka, 15th September, 1962 (R. H. Smeaton and R. V. Wood). Nest in riparian forest, seen by C. W. B. on 2nd October, when one of the parents was incubating.

Gallinula angulata Sundevall

This species seems strictly seasonal in its breeding, Benson *et al.* (in press) giving 84 egg-laying records (67 from Southern Rhodesia), all for December to May, with a peak of 27 for January and 32 for February. It may also be seasonal, breeding only in the rains, in South-West Africa and in Huila, southern Angola. Andersson (in Gurney, 1872) records it as nesting abundantly at Ondonga in February and March. Traylor (1963) gives no breeding records. But thanks to a grant from the Frank M. Chapman Memorial Fund, made at the instance of Dr. D. Amadon, C.W.B. was able to study the material of this and various other species collected by Ansorge in Angola, in the American Museum of Natural History. Of two specimens from Dongwenna, 28th March, 1906, Ansorge nos. 493/4, 493 is an adult male, 494 a young bird still completely in black down. The label of the latter is endorsed that it is the young of 493, "swimming actively behind its parent and the only young one accompanying its parent". The tip of the bill was "snow white", as is still apparent, for the apical 3 to 4 mm. The shield was "burnt sienna with a narrow pale purplish band around forehead". A female collected between Bissapa and Que on 11th January, 1906, has the label endorsed "had a large egg, broken by the shot". A female from Tala Kilau, 30th March, 1906, is not fully grown, having wing 83 and culmen (exposed) 19 mm. only (27–31 mm. in adults).

Fulica cristata Gmelin

Coll. C/3 about half incubated, from a pan near Ndola, 1st May, 1963 (Button). Eggs pale greyish-white, original colour probably pale brown,

dissolved out by water; finely and sparsely spotted all over with blackish on underlying ashy; size 52.2 x 35.7, 53.4 x 36.2, 53.6 x 36.0 mm. This is only the second local breeding record of this species, which is uncommon in Northern Rhodesia. Button noticed no other pairs on this pan. A third record is from the Tondwa Plain, Mporokoso District, where on 26th June, 1963, L. D. C. Allen found four downy young with their parents. He was able to catch one of the young, considered less than one week old.

Grus carunculatus (Gmelin)

Dr. Lawrence H. Walkinshaw has drawn our attention to the degree of success in the rearing of young in this species. Twenty-eight records have now been accumulated for Northern Rhodesia of nests with eggs, of which 12 are of C/1 and 16 of C/2. Two of the C/1 refer to fresh eggs, but five at least may have been full clutches, since in three cases the egg was being incubated and in two others it was hatching. Nevertheless the proportion of C/2 clutches is well over 50%. Despite this, out of 58 records of young in various stages of development, in all cases still under parental care, only one is of two young, Attwell recording "two well grown but not yet capable of flight" on the Busanga Plain, Kafue National Park, 26th September, 1960. In the Check List there is a record of two young about fledged, but these were in no way connected (*Bull. Brit. Orn. Cl.*, 79, 1959: 18). Pace Benson (1960), who gives two records of C/2 hatching, there is no positive evidence that this really applied to *both* eggs. Apart from Attwell's record and one other (by Fuller) mentioned below, the only record of two young is one by Carr, see the Check List (young just hatched). C. D. Simpson has recently reported two nests from the Kafue National Park. One contained C/2 on 17th August, 1963, but on the 26th only the one chick was found. Another held C/2 on 22nd August, 1963, on the 30th only the one chick was found. In both cases the chick was out of the nest but in the vicinity. West (1963: 68), considering six Southern Rhodesian clutches, found that in five C/2 (clutch-size not known in the other case) in three cases only the one egg hatched. In the other two cases only the one chick was seen, but it is not certain whether only the one had hatched. In all six cases there was only the one chick.

The point that normally two eggs are laid but only the one chick is reared has not escaped the notice of the Ila people of the Namwala District, for Uys tells us that *Grus carunculatus* is regarded by them as a poor parent, unable to rear more than one young. Further corroboration comes from A. T. Fuller, the Manager of Lochinvar Ranch, who on one day in October, 1960 saw some 60 young under parental care, all singles, except for one pair just able to fly.

Benson *et al.* (in press) give 45 records of egg-laying by months (in some cases back-calculated even from small young) for Northern Rhodesia and Nyasaland (five records), from April to November (peak in May to August). The fuller information now available supports this, though Vesey-FitzGerald has recently reported a C/1 about to hatch, Abercorn, 2nd March, 1959.

Rhinoptilus cinctus emini Zedlitz

During 1963 J. M. Feely saw three lots of young with their parents, in

the Luangwa Valley between 11° 50' S. and 12° 10' S., on bare ground in Mopane woodland, in the lights of a landrover at night:— 10th July, three one-third of adult size; 17th September, two half of adult size; 22nd September, three half of adult size. The first lot were probably from eggs laid in late May, the other two in early August. These are the first local breeding records.

The records of three young seem unusual. Benson *et al.* (in press) give eight egg-laying records, all from Southern Rhodesia, in all of which the clutch-size was two. Possibly these young did not come from the same clutch, though on the other hand *R. chalcopterus* commonly lays C/3 (there is of course no question of the authenticity of Feely's records).

Pterocles gutturalis gutturalis Smith

Coll. C/3 about two-thirds incubated, Lochinvar, 2nd June, 1963 (C.W.B.). The eggs, laid in a shallow scrape in open grassland, are elliptical and well glossed, pale brown, marked all over with bold spots and scrawls of light burnt umber on underlying very irregular spots of light violet-grey; size 45.0 x 33.0, 44.0 x 34.0, 45.0 x 34.2 mm. Another clutch about to hatch, collected by Bruce-Miller on his farm near Choma on 25th July, 1963, also consisted of three eggs.

For evidence that this species is migratory, see *Bull. Brit. Orn. Cl.*, 81, 1961: 160. Fuller reports that since he assumed residence at Lochinvar in 1955, after the locally breeding birds have departed in October, regularly for about one week in early December flocks of up to 1,000 birds descend to drink for a few minutes at small pools formed by rain on land being planted with maize, at any time of the day, and then pass on south. The birds are very tame, allowing Fuller's tractor to approach within 20 yards. Possibly they are on passage from as far away as the Rukwa Valley, whence Vesey-FitzGerald & Beesley (1960) report an influx in the dry season. Perhaps they (and the locally breeding birds) "winter" in drier country, in Bechuanaland or South-West Africa, but evidence from anywhere south of the Zambezi of an influx from the north at the start of the rains, as far as we are aware, is not yet forthcoming.

Pterocles bicinctus usheri Benson

Coll. two chicks by hand, Luangwa Valley at 13° S., 18th August, 1963 (W. F. H. Ansell). The chicks were accompanied by both parents, and have been preserved in spirit. They were probably not more than two weeks old, and not yet fully feathered, though would have apparently resembled an adult female when all the feathers had been acquired. In the same locality Feely noted a pair with two chicks not more than one day old, 21st July, 1963. There are now nine Northern Rhodesian breeding records, reflecting egg-laying during June to August. Unlike *P. gutturalis*, this species probably does not have any long distance movements, for Feely has five records of individuals or pairs in the Luangwa Valley in February and March, and another of a pair in *Brachystegia* woodland (not a normal habitat) in plateau country to the east, 20 miles north of Diwa Hill, in October. In the Rhodes-Livingstone Museum there is a specimen from Livingstone, collected in January, and two from Zimba, 17° 20' S., 26° 12' E., in February.

Centropus cupreicaudus cupreicaudus Reichenow

C. S. Holliday collected a male on the Machili River at 17° S., 3rd September, 1963, at a nest with one fresh egg, smooth, white, slightly glossed, size 36 x 28 mm. Both the specimen and the egg are in the Rhodes-Livingstone Museum. The date is unusual, the data in Benson *et al.* (in press) showing that *Centropus* spp. lay mainly in the rains, and only one record is given for laying as early as September, for *C. superciliosus*. The nest was merely a platform of *Phragmites* reeds and finer grass-stems, three feet above water in a reed-bed. No doubt a superstructure would have been developed in due course.

C.W.B. has examined a pair of feathered nestlings from Chitau, Angola, 24th March, 1933, in the American Museum of Natural History. They have wing 115, 120; tail 48, 55; culmen (from base) 28, 28 mm. They only differ constantly from adults in the following respects:— crown dull bluish-black, lacking any violaceous gloss; primaries and secondaries with a little dark brown barring towards tips (chestnut of upper side, including dark brown of mantle, otherwise immaculate as in adults); tail blackish brown rather than brown.

Hirundo albigularis subsp.

Button observed a pair nesting in the eaves of a deserted barn at Fort Rosebery, 20th October, 1961. The nest contained three eggs. This is the first breeding record of this species from Northern Rhodesia. It is most likely referable to *H. a. ambigua* Bocage, an older name than *H. a. microp-tera* Hartert, nearest to which specimens from the Mweru Marsh have been attributed. An adult female collected by M. P. Stuart Irwin on Lochinvar Ranch, 30th May, 1963, has wing 133 mm., and so is nearest to *H. a. albigularis* Strickland.

Hirundo rustica angolensis Bocage

Feely observed a pair of adults accompanied by three fledged juveniles which roosted in a nest placed on a rafter over the porch of the rest house on the Nyika Plateau at 7,000 feet while he was there from 10th to 12th December, 1962. The young, watched from a distance of only two feet, still had well developed gape-wattles and short outer rectrices. This is the first breeding record from Northern Rhodesia, though there is one from Livingstonia, northern Nyasaland. This is a very uncommon species, of which there are no records further to those in the Check List, except for the present one. The record by Benson from Johnston Falls is of four individuals, the exact date 14th August, 1956.

Amblyospiza albifrons albifrons (Vigors)

Coll. feathered juvenile ♂, Chunga, 15° 00' S., 26° 00' E., 14th February, 1963 (Wright). This specimen is not fully grown, having wing 72, tail 30, culmen (from base) 14 mm. only. It had probably fallen out of a nest.

Anomalospiza imberbis imberbis (Cabanis)

Coll. two feathered nestlings, wings 43, 45 mm., Chilanga, 2nd February, 1963, from a nest of *Prinia subflava* containing no eggs or young of its own (C.W.B.). Friedmann (1960) writes that the nestling of *Anomalospiza* is

not known to have any mouth-markings or papillae, but that further information is needed. Mouth-markings were lacking in these two specimens, which were also examined by C. M. N. White. The interior of the mouth was flesh-coloured, the tongue being purplish pink, and the interior of both mandibles bright yellow. Viewed externally, the upper mandible was sepia, the lower ochre with extreme tip sepia. There was a pale yellow gape-wattle.

The crop-contents were examined by K. J. Wilson, an entomologist in the Department of Research and Specialist Services. One of the specimens contained six complete caterpillars (*Plusia* sp.); 10 pairs of caterpillar mandibles and 12 of orthopteran and assorted mandibles; six legs of a louse (mammalian ectoparasite); and much indistinguishable debris of insect origin. There were also several small pieces of a pinkish quartz-like substance, and vegetable matter consisting of seven minute sub-circular brown seeds and one small pyramidal-shaped seed. The other specimen also contained small pieces of the quartz-like substance, but no vegetable matter. There was much material, apparently of insect origin, too macerated to be identifiable, but also two fragmented caterpillars and two wasp heads.

V. J. Wilson collected a similar feathered nestling at Chipengali, 13° 25' S., 32° 40' E., 18th February, 1963. It was in a "warbler's nest" with another nestling exactly the same, which was spoilt in skinning and not retained. For the only other Northern Rhodesian breeding record, see *Ostrich*, 1961: 95.

There are two adult males in the Rhodes-Livingstone Museum, collected at Livingstone on 17th February and 24th March, 1963.

Estrilda paludicola benguellensis Neumann

C.W.B. found a nest containing four feathered young at Salujinga, 10° 58' S., 24° 07' E., 19th March, 1963. The nest was on the ground, in a thick growth of the fern *Pteridium aquilinum* and wild ginger *Aframomum* sp., in abandoned cultivation. Superimposed was a "cock-nest", as is usual in *E. astrild*. *E. paludicola* was very frequently noticed while at Salujinga for ten days at this time, mostly in dambos, but *E. astrild* was never seen.

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DINNERS AND MEETINGS FOR 1964

17th March, 28th April (A.G.M.), 19th May, 15th September, October (with B.O.U.), 17th November, 15th December.

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OF THE

BRITISH ORNITHOLOGISTS' CLUB



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BULLETIN
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BRITISH ORNITHOLOGISTS' CLUB

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The six hundred and fifteenth meeting of the Club was held at the Rembrandt Hotel, London, on the 17th March, 1964.

Chairman: Major-General C. B. Wainwright

Members present: 30; guests 10.

Recordings of the calls of ten nightjars and five owls were played and commented upon by Captain C. R. S. Pitman. The excellence of the series and the efforts of Mr. Myles North and his collaborators who obtained them were much appreciated.

Nine of the nightjars were species that breed in Africa and the tenth was *Caprimulgus europaeus* recorded in Denmark. The calls or songs were those uttered chiefly, though not exclusively, in the breeding season.

For some years Mr. North has been studying the songs of nightjars in eastern, central and southern parts of Africa and it is thought that such characteristic sounds may be of importance in assessing the relationships between the various Caprimulgidae. Mr. North would be grateful for further assistance in obtaining recordings of the songs of any accurately identified African nightjars.

An especially interesting feature of the African owl recordings was the duet type of calling between the sexes of *Ciccaba woodfordi*.

It was very disappointing that Sir Landsborough Thomson was unable to attend this meeting where he was to have spoken on editing "A New Dictionary of Birds".

On the races of the White-rumped Swift *Apus caffer*

by R. K. BROOKE

Received 14th December, 1963

Slater (1924) recognized three races of *Apus caffer*—

- (1) nominate *caffer* (Lichtenstein, *Verz. Doubl.* p. 58, 1823: Kaffirland) south of the Zambezi;
- (2) *ansorgei* (W. Slater, *Bull. B.O.C.* XLII, p.63, 1922: Ndalla Tando, Angola) northern Angola and Portuguese Congo;
- (3) *streubelii* (Hartlaub, *Journ. Ornith.* 1861, p. 418: Keren, Ethiopia) Ethiopia, Sudan, Uganda and Kenya.

They were considered to differ in wing length and it has been suggested that *ansorgei* had a darker crown and a more bluish back (Chapin, 1939, Traylor, 1960). The accepted races were believed to be isolated by extensive areas in which the species did not occur.

The collecting of the last 40 years has shown that there is no major break in the distribution of the species and the much larger number of specimens now in museums permits a reconsideration of differences in wing length. The table gives the wing lengths collected by correspondence from the museums mentioned under "Acknowledgements", from Dr. W. Serle and the following publications:—

Chapin (1939), Finsch (1870), Hoesch & Niethammer (1940), Ogilvie-Grant (1908), Stoneham (1926).

It will be seen from the table that there is no well marked break in wing length but only an increase in length from north to south. The increase takes a leap forward in the northern Transvaal but the overlap is still very great. It should be noted that wing lengths of males and females have been amalgamated. There is a tendency for females to have wings shorter by a millimetre or so than males in the same area. Half millimetres have been taken to the nearest millimetre above. The old French "inches" in Finsch (1870) have been converted at a rate of 27.08 mm. to the inch. The Berlin specimens of Hoesch and Niethammer (1940) have been remeasured by Herr Mauersberger whose results which I have used in the table give a wing at least 3% longer. This variability of measurement is important since these specimens were among those cited by Traylor (1960) when extending the range of *A. c. ansorgei* well down into South-West Africa. This variability of measurement also warrants a cautious taxonomic approach to populations which differ only slightly albeit significantly in average measurements. Following Amadon (1949) I conclude that *Apus caffer* should be treated binomially.

The type is in Berlin and has a wing length of 151 mm. It was collected at Galgenbosch near Uitenhage in the eastern Cape Province on 1st March, 1822.

The Uganda specimen with wing length of 147 mm. was collected on 7th June. The next largest Uganda bird has a wing length of 144 mm. Cumming (1952) has shown that most South African birds leave that country for the months of April to August. The suggestion is made that the unknown winter quarters of the southern populations include Uganda.

Acknowledgements:

C. W. Benson for advice and the loan of his notes; R. M. MacGinty, my colleague, for guidance in statistics; Mrs. B. P. Hall, M. P. S. Irwin and Herr G. Mauersberger for answering questions on specimens in their care; the following curators provided me with measurements of specimens in their care: J. Bond (Philadelphia); M. Courtney-Latimer (East London); M. G. Guerreiro (Lourenco Marques); W. J. Lawson (Durban); R. Liversidge (Port Elizabeth); G. Mauersberger (Berlin); C. O'Brien (New York); K. C. Parkes (Pittsburgh); R. A. Paynter (Harvard); O. P. M. Prozesky (Pretoria); M. A. Traylor (Chicago); G. E. Watson (Washington); J. G. Williams (Nairobi); J. M. Winterbottom (Cape Town).

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A new race of *Estrilda atricapilla* Verreaux

by MELVIN A. TRAYLOR

Received 29th November, 1963

Two races of *Estrilda atricapilla* have generally been recognized, nominate *atricapilla* ranging from Gabon and Cameroon to the lowlands of the eastern Congo and Kasai, and *graueri* ranging from the highlands of the eastern Congo to the Kenya highlands. However, Mackworth-Praed and Grant (1955, *Hdbk. Birds E. and N.E. Afr.*, 2: 1028) extend *graueri* to the Congo lowlands, southwest to Kasai. Examination of series from the whole range of the species shows that there are actually two races now included in nominate *atricapilla*, birds from the eastern Congo lowlands agreeing with *atricapilla* in some characters and *graueri* in others. I propose to name this new race:

Estrilda atricapilla avakubi subsp. nov.

Type: adult ♂ from Avakubi, Ituri district, Congo, collected 8th December 1909 by James P. Chapin; collector's number 511. American Museum of Natural History number 162543.

Diagnosis: Differs from *atricapilla* by being generally paler, particularly on the cheeks and throat which are whitish rather than grey; barring on the back more broadly spaced, the black bars being more prominent because of the paler grey background. Differs from *graueri* in the much

more broadly spaced dorsal barring, and in the brighter red rump and upper tail-coverts; slightly larger in wing length.

Measurements of type: wing 48; tail 45; tarsus 15; bill 10.

Range: Lowlands of the eastern Congo from Tshuapa and Ituri districts south to Kasai, and extreme northeast Angola.

Remarks: The eastern race *graueri* resembles *atricapilla* of West Africa more nearly than it does the intervening *avakubi*. Both are finely barred above, but *graueri* is paler on cheeks and throat than *atricapilla*, and rump and upper tail-coverts are a darker red. There seems to be a real gap between the ranges of *atricapilla* and *avakubi*, for the species is not known from along the middle Congo River or in Moyen Congo.

Variation in size is not great. Within *atricapilla* Gabon birds are smaller than those from Cameroon; *avakubi* is similar to the Cameroon populations, and *graueri* is somewhat smaller. Comparative wing measurements are:

		♂♂		♀♀
<i>atricapilla</i> —Gabon	(5)	45–47 (45.8)		45, 45, 47
Cameroon	(7)	47–49 (47.7)	(8)	46–47 (46.6)
<i>avakubi</i>	(4)	47–48 (47.5)		46, 47
<i>graueri</i>		45, 46		

Some observations of bird behaviour made from an aircraft in the Serengeti National Park

by M. I. M. TURNER

Received 3rd December, 1964

The Tanganyika National Parks are among the foremost users of light aircraft in game management work in Africa, and the following notes are drawn from over 700 hours flying experience in the Serengeti National Park during the years 1961–1963 while on normal Game and Administrative duties.

Undoubtedly among the greatest hazards to aerial work over the game areas in Africa are the great birds of prey, and, here in the Serengeti with its estimated 1,000,000 head of ungulates, the concentration of vultures and eagles is very large. Six species of vulture exist in the Park as follows: Rüppell's Griffon (*Gyps rüppellii*), White-backed Vulture (*Pseudogyps africanus*), Lappet-faced Vulture (*Torgos tracheliotus*), White-headed Vulture (*Trigonoceps occipitalis*), Egyptian Vulture (*Neophron percnopterus*) and Hooded Vulture (*Necrosyrtes monachus*). These great birds, weighing 12–15 lbs., can be encountered at any altitude between ground level and as high as 12,000 ft., and are ever in attendance on the great migratory concentrations of wildebeeste and zebra throughout the Park. Vultures are poor fliers and rely in Africa almost entirely on ascending thermal currents to gain height to carry out their daily patrolling, ever searching for dead and dying animals. In the mountainous areas of the Ngorongoro highlands adjoining the South East boundary of the Serengeti, the high winds are used by vultures to the same effect. In the early morning or late evening most of the larger birds of prey are effectively grounded by the thinner, cooler air. In the dry weather and in open country, vultures

are rarely aloft before 9 a.m. unless there is a strong wind, and it is interesting to see these birds resting on the great granite inselbergs in the treeless central plains areas in the morning, waiting for the rocks to heat up, causing thermals which will allow them to climb. Once aloft they would have to find food before 5 p.m. when the cooler air forces them to descend. In wet weather vultures are grounded for most of the day, but in dry weather, having once gained soaring height on a thermal they may cover many miles before descending. When flying, with practice one can easily spot vultures straight ahead up to three miles away. Great care should be taken when vultures are seen diving on a carcass diagonally across the path of the plane, as usually more are following from above and may be in the "dead" spot above the wing and therefore unseen. It is interesting to note that vultures will not avoid an aircraft until the last moment, and it is well never to count on them doing so. Flying up behind, and to one side of a soaring vulture, it is interesting to note the bird's reaction. Usually a scraggy neck turns and a beady eye calmly surveys the aircraft—an interloper in their element! The "blind spots" in a normal high wing light aircraft are below the engine cowling and above the wings, and it is usually from these directions that one's biggest danger comes. The author of this article had a vulture come up from below the port wing, was first seen at 10 ft. from the aircraft, and the bird passed between the strut and the fuselage at great speed.

As well as vultures many species of the larger eagles inhabit the Serengeti, one of the most common being the Bateleur Eagle (*Terathopius ecaudatus*). This soaring eagle with its distinctive black and chestnut upper parts, brown shoulders, very short tail and red face and feet is probably the finest aerobatic flyer of all the larger birds of prey, and generally easily avoids an aircraft before the pilot has taken any action himself. To see a Bateleur do a 90° turn, roll and dive in one movement is an unforgettable experience. Other powerful eagles commonly met up to 2,000 ft. are the Martial Eagle (*Polemaëtus bellicosus*) and the Tawny Eagle (*Aquila rapax*).

One of the common palaearctic winter migrants to Africa is the White Stork (*Ciconia ciconia*) and every year great flocks of these pass over most of East Africa on their way south. Great care should be taken when they are encountered in the air. At considerable heights, sometimes up to 12,000 ft., it is quite easy to fly unknowingly underneath a flock, and when disturbed the evasive action of these storks is, to say the least, disconcerting. Dropping their legs and closing their wings, they fall like stones, and to be directly underneath a flock with birds plummeting past the plane in every direction is an unforgettable experience. However, flocks can usually be spotted ahead by their colour and the flash of the sun on their wings. In 1960 a White Stork was collected at Seronera bearing the ring of the Russian Marking Station of Beloviezha where it had been ringed as a nestling in 1959.

Another large bird often encountered at great heights, but easily avoided due to its slow flying, size and coloration, is the Pink-backed Pelican (*Pelecanus rufescens*) forever flying between the great lakes system of the Rift Valley which borders the Serengeti. It is interesting to fly past a flock and to note the regular slow beat of their powerful wings and the head held well back like a Heron.

Much of the flying in the Serengeti is done at below 1,000 ft., and it is at these lower levels that the following species are commonly encountered. Yellow-throated Sandgrouse (*Eremialector gutturalis*) at times feed on the Central Plains area of the Park in large flocks and seem to have an extremely slow take off and evasive action.

Crowned Lapwing (*Stephanibyx coronatus*) are often met with up to 500 ft., and it is sometimes disconcerting to see the Flappet Lark (*Mirafr rufocinnamomea*) suddenly appear in front of the aircraft, poised in the air at the top of his mating flight, to drop like a stone as one passes.

In December and January great flocks of Red-billed Quelea (*Quelea quelea*) can be seen feeding in the stands of wild sorghum grass on the Central Plains in the South Western area of the Serengeti. In the early morning, one sees a great wave of birds flying in a long line about 60 ft. above the ground, numbering sometimes hundreds of thousands, resembling smoke or light cloud in the sky.

Up to 1,000 ft. great flocks of the large Mottled Swifts (*Apus equatorialis*) are often seen. Due to the speed of these birds no evasive action is possible and one merely sits tensely at the controls watching swifts disappearing under the engine cowling and wings at tremendous speed seeming practically to turn themselves inside out in their efforts to avoid the aircraft, and such is their remarkable aerobatic ability that they rarely collide with it. At lower levels near cliff faces and inselbergs, large flocks of Little Swifts (*Apus affinis*) are often encountered up to 100 ft. above the ground.

Finally it is not unusual to meet the Secretary Bird (*Sagittarius serpentarius*) gliding in wide circles up to 500 ft. altitude, probably on mating display flight. Recently a D.C.3 collided with one of these birds at Seronera aerodrome, resulting in a shattered windshield and badly buckled cabin roof. The reaction of Ostrich (*Struthio camelus*) to low flying aircraft is interesting. Invariably they puff out their wings and display, meanwhile turning in every direction, as if trying to locate the noise.

Breeding records of the larger birds of prey are easily noted from low flying light aircraft. The vultures and eagles usually nest in the top of the *Acacia tortorlis* and yellow fever trees which abound in most areas of the Serengeti, and these nests, impossible to reach from the ground, are easily spotted from the air by the white droppings which cover the branches near the nest. A first record for the Park of the breeding of the Saddle-billed Stork (*Ephippiorhynchus senegalensis*) was discovered in this way.

In conclusion I would like to record my thanks to Mr. R. M. Watson, pilot of the Serengeti Research Project, in whose company many of these observations were made.

My thanks also to the Director and Trustees of the Tanganyika National Park for permission to publish this article.

Alcedo quadribrachys and *A. semitorquata* in the North-Western Province of Northern Rhodesia

by C. W. BENSON

Received 25th November, 1963

My assistant Jali Makawa accompanied G. Bell-Cross on a tour of the North-Western Province in October, 1963, collecting on behalf of the Rhodes-Livingstone Museum, and I am most grateful to Bell-Cross for the

interest he took in these activities. Of particular interest are two male specimens of *Alcedo quadribrachys guentheri* Sharpe, obtained in dense evergreen forest bordering the Mwombezhi River at 12° 15' S., 25° 34' E., during 27th/29th October. This species has only previously been reported from Northern Rhodesia from western Balovale District (Benson, 1960). It is even more noteworthy that on 27th October, at exactly the same site on the Mwombezhi, a female of *A. s. semitorquata* Swainson was obtained. A male of this latter species had already been collected on the East Lumwana River at 12° 16' S., 25° 40' E. (Only some six miles from the Mwombezhi locality), and another on the Ingoma Stream at 11° 45' S., 24° 55' E., both on 27th March, 1963. The Lumwana specimen is, incidentally, unusually pale below.

Measurements in mm. of specimens from the North-Western Province are:—

	Locality	<i>Alcedo quadribrachys</i>	Wing	Culmen from base
♂	Balovale District		79	53
♂	Mwombezhi		75	48
♂	"		76	48
♀	Balovale District		77	47
		<i>Alcedo semitorquata</i>		
♂	East Lumwana		80	51
♂	Ingoma		83	49
♀	Mwombezhi		79	51
♀	Ngalula, 13° 24' S., 24° 51' E.		80	49

Four specimens of *semitorquata* from the upper Katanga (localities in Schouteden, 1951), whose wing and culmen lengths I took when working in the Congo Museum, Tervuren in 1955, measure respectively as follows:

♂, 83, 48; ♂, 84, 50; ♀, 83, 47; ♀, 86, 55 mm.

Thus in or near the area of overlap (there is reason to suppose that it is explicable on a basis of off-season movements, *semitorquata* at least being in my experience sedentary), *semitorquata* has a longer wing-length than *quadribrachys* (79–86 as against 75–79 mm.), but there is no appreciable difference in bill-length (47–55 as against 47–53 mm.). Verheyen (1953) gives the wing of three specimens of *quadribrachys* from the Upemba National Park as 75, 77, 79 mm. His figures for the culmen are evidently for the exposed part only, and are not comparable.

Measurements in mm. of material of *semitorquata* from Northern Rhodesia (excepting the North-Western Province) and Southern Rhodesia in the National Museum, Bulawayo, lent by M. P. Stuart Irwin, are:—

	Wing	Culmen from base
9♂♂	79–82 (80.2)	45–52 (49.0)
4♀♀	80–83 (81.5)	45–51 (48.2)
2♀♀	83, 84	46, 48

A male from Chilanga, Northern Rhodesia, 19th November, has wing 74, culmen 36 mm. only, and is evidently not fully grown. It has dusky barring extending across the chest. A female from Gorongoza, Portuguese

East Africa, has wing 78, culmen 48 mm. Specimens from this territory and from eastern Tanganyika have relatively small wing-measurements, see the figures in Clancey (1951) and Benson (1952), and have been called *A. s. tephria* by the former author. There appears to be no marked variation in wing-length in *quadribrachys*, comparing the figures given above with those in Bannerman (1933), the overall figures even for the western, nominate sub-species being 71–81 mm.

Benson (1960) suggests that *quadribrachys* and *semitorquata* could not co-exist, their ecological requirements being so similar, but this seems to be no longer acceptable. Except that *semitorquata* extends into south-western Angola (Traylor, 1963), their case is analogous with examples of lower level gaps (as opposed to montane gaps) in distribution between western and eastern African representative forms given by Benson & Irwin (in press). In the case of western *quadribrachys* and eastern *semitorquata*, however, there is no gap, at least in north-western Northern Rhodesia, and even some overlap. Evidence of an overlap may also be forthcoming in due course from the Katanga. But they may nevertheless be regarded as forming a superspecies, in which *atthis* should also be included.

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Some further records from the North-Western Province of Northern Rhodesia

by C. W. BENSON and C. S. HOLLIDAY

On the tour referred to in the immediately preceding paper, specimens were also obtained in the same site on the Mwombeszhi River, between 23rd and 29th October, of the following:— *Pogoniulus bilineatus mfumbiri* (Ogilvie-Grant), *Trochocercus cyanomelas vivax* Neave, *Cossypha bocagei chapini* Benson, *Bradypterus cinnamomeus nyassae* Shelley, *Prinia l. leucopogon* (Cabanis) and *Schoenicola brevirostris alexinae* (Heuglin). A male in breeding condition of the last named was also obtained at Mt. Makulu, 15° 34' S., 28° 16' E., on 6th April.

At Ngalula, 13° 24' S., 24° 51' E., visited from 7th to 21st October, specimens were obtained of the following:—

Accipiter m. melanoleucus Smith (♀, wing 327 mm.), *Aquila (Hieraetus) dubia* (Smith), *Pachyoccyx audeberti validus* (Reichenow), *Turdus olivaceus stormsi* Hartlaub, *Apalis cinerea alticola* Shelley, *Dicrurus l. ludwigii*, (Smith), *Malaconotus nigrifrons manningi* Shelley, *Nectarinia olivacea*

lowei (Vincent), *Ploceus bicolor kigomaensis* (Grant & Praed) and *Serinus c. capistratus* (Finsch) (this last has also recently been obtained by D. Bromfield at Kitwe).

M. P. Stuart Irwin has drawn our attention to two males and a female of *Lagonosticta rubricata* collected by C. W. B. at Salujinga, 10° 58' S., 24° 07' E., in March, 1963, in the National Museum, Bulawayo. Compared with other material therein, from elsewhere in the Rhodesias and Nyasaland, the brown of the upper side is much darker, and the crown greyer, less pink. The Salujinga specimens appear to be near *L. r. congica* Sharpe, while the remainder are *L. r. haematocephala* Neumann, though a male and female from Ntambu, 12° 27' S., 24° 59' E., are intermediate.

On birds new for New Guinea or with a larger range than previously known

by A. HOOGERWERF

Received 28th December, 1963

From January, 1959 till mid-June, 1961, and from February till the middle of September, 1962 the author worked at the Experimental Rice Estate "Kumbe" at Kurik in south New Guinea, studying mammals and birds harmful to rice cultivation. The work was carried out by order of the Director of the Agricultural Research Station at Manokwari.

Kurik's rice growing area covering some 750 acres, is situated about six miles north of the mouth of the Kumbe River and some 25 miles northwest of Merauke as the crow flies. This artificially irrigated flat area consists of two polders, known as the North (500 acres) and the South polder (250 acres). This whole cultivated area is inundated by water from an irrigation tank created by the partial impoldering of an extensive swamp, surrounded by thin *Eucalyptus* forest known as the Gali Ephata marsh. Though large parts of this swamp become dry during the East monsoon, this never or very rarely happens to the whole area and it is almost impossible that it will happen with the deeper impoldered part. Marsh and tank are mostly covered with low marsh and water plants with some trees and tree-groups scattered all over the area.

The surroundings of the Rice Estate consist almost exclusively of uninhabited savannahs, inundated for the greater part during the rainy season, dry or nearly dry during at least six months (June till November), except some lower enclaves holding water during all months. The desiccated savannahs covered with thin *Eucalyptus-Melaleuca* forests and "gempol" (*Nauclea orientalis*) on the more open places, which are covered with grass or a grasslike vegetation, are burnt down by the natives nearly every year, changing huge plains into black deserts and making the name fire-savannah very appropriate.

During 1956 till 1961 there was an annual rainfall at Kurik of 1715, 1737, 1460, 1315, 1739 and 1381 mm., with maxima of 323 (February), 427 (December), 264 (March), 415 (February), 402 (March) and 390 mm. (January) and minima of 51 (August), 0 (September), 4 (August), 3 (October), 11 (September) and 4 mm. (August) respectively.

During 1960 and 1961 the lowest morning temperature (between 5 and 6 a.m.) registered in June till October, was 17-20° C. and the highest temperature was recorded in November till May, viz. 27° C.

Most ornithological observations were made at Kurik and surroundings, but much attention has also been paid to the vast savannahs near the mouth of the Maro River, known as the Paal Putih plain; the beaches and adjacent plains between the Kumbe and Bian Rivers and—though in a smaller degree—to the Kumbe River itself for many miles upstream. Several trips were made to territories far west of the Bian River, viz. to the small island Habe between Merauke and the Frederik Hendrik Island, to this latter island and to the Asmat and Mappi regions (150–175 miles N.N.W. of Kurik).

Towards the end of September, 1962 I sailed to Manokwari via Sorong where I stayed some weeks. I worked at Manokwari on the north-west point of Geelvink Bay from October, 1962 till the beginning of April, 1963. Visits were paid to some settlements along Geelvink Bay (Andai, Ransiki, Oransbari), to the Kebar Valley (about 60 miles south-west of Manokwari, and 500 m. above sea-level) and the Anggi Lakes (west of Ransiki, about 1,200 m. above the sea). In the surroundings of Manokwari itself much attention was paid to the Forest Reserve “De Tafelberg” and to the well forested region between Manokwari and Andai, about 20 miles to the south.

Though my work at Kurik’s ricefields brought me out of doors nearly every day, only a limited part of my time could be spent on watching and collecting birds not belonging to species affecting rice cultivation. During my stay at Manokwari ornithological and ecological studies were carried out and special attention focussed on the reserve and surroundings, mostly covered with primeval forest.

Particulars given below refer only to species not as yet recorded as occurring in New Guinea (including the Australian part of the island), to birds of which occurrence was considered doubtful, or of which the known range did not include the present one. This knowledge was based on Mayr’s List of New Guinea Birds (10) and on literature which appeared after that list, though I might have overlooked some items, for which I apologize.

Typescripts dealing with all birds observed and collected are in preparation and some on the study of harmful birds are in print. The greater part of the collected material is in the Leyden Museum but all birds collected at Manokwari and the Vogelkop were seized by the Indonesians a day after my departure to Australia on April 9th, 1963 when West New Guinea was still under management of the UNTEA.

In the present list I have followed the names and sequence used by Dr. Ernst Mayr’s work (*loc. cit.*), which was a very valuable guide for me and an important stimulus to go on often under extremely difficult circumstances. In some cases I have changed the names in accordance with more recent literature.

1. *Oceanites oceanicus* Kuhl

Wilson’s Storm Petrel

Of the Tubinares recorded on page 5 of Mayr’s list from the seas adjoining the Papuan Region, but not yet found in the area discussed here, Wilson’s Storm Petrel was identified for the first time (a single bird) on 11th November, 1959 when sailing from the Casuarinen coast to Agatz (about 137° E., 6° S.). On 25th September, 1962 the species was observed anew not far from the first locality viz. from the KPM vessel “Kasimbar”

when sailing between Frederik Hendrik Island and Kaimana (about 136° E., 6° S.). In the late afternoon shortly before sunset, a number was observed—always two or three together—apparently looking for food while flying low over the sea. The small, chocolate coloured bird with the clear white lower back which I knew on account of earlier observations, precluded any doubt about the identity

2. *Anhinga rufa* (Lacépède et Daudin)

Darter or Snake Bird

For this species which may be considered of rather common occurrence within our area, Mayr mentions the Fly River as the most westerly part of the range along the south coast.

In the neighbourhood of Kurik, especially in the Gali Ephata swamp and upstream on the Kumbe River, it could be seen in every month, though there was much fluctuation in occurrence, apparently influenced by food supplies. The species was also seen in the Mappi district (November, December, 1959 and May, 1960) and on Frederik Hendrik Island (May, 1960). On 19th July, 1960, five and on 26th July, seven were seen together; on 16th August, 1962, 15–20, on 5th September about ten and on 11th September again five, all in the Gali Ephata area.

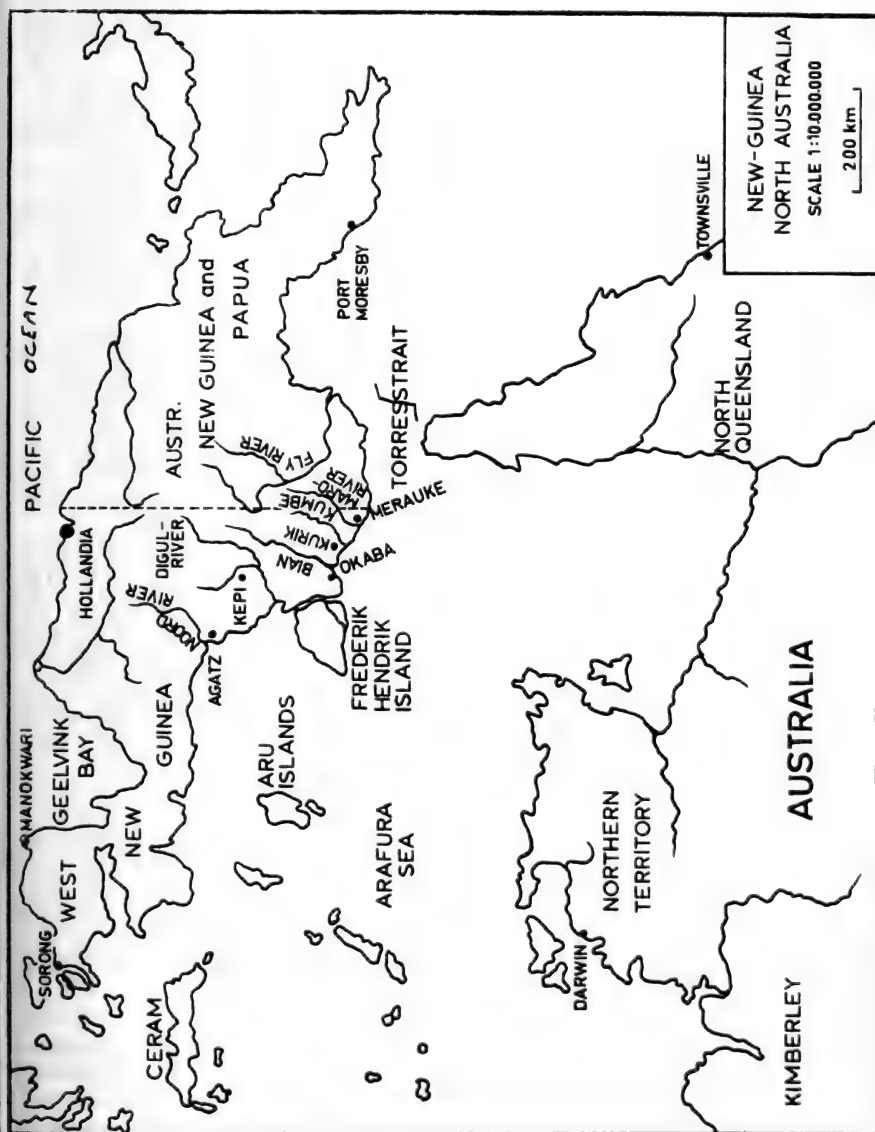
On 25th December, 1959 and on 19th June, 1960 I found a bird unable to fly on account of moult. Very noisy individuals were heard in December. Though a collected specimen apparently belongs to the subspecies *papua*, it is by no means certain that all observed ones belonged to this form and not to the Australian race *novae-hollandiae*.

The number of birds having light under parts outnumbered those showing black underneath; all those seen in August and September 1962 had light under parts! Because a young female collected and sexed by myself has some dark feathers on the whitish breast, some doubt arises as to whether it is indeed true that a light under body can be considered a character for all adult females of the Papuan race as assumed until now (Rand, 14). But in September 1936 females in laying condition were obtained by Rand (15) in the Middle Fly River area so that it seems fairly certain that adult females are whitish underneath, though breeding of birds in juvenile plumage may not be excluded as is known in other species, e.g. in *Sula rubripes* (Hoogerwerf 7). The Indonesian subspecies of *Anhinga rufa* (*melanogaster*) is known to have the under parts black or blackish in both sexes.

3. *Notophox novaehollandiae* Latham

White-faced Heron

This is a species which was not known from the area under discussion here. Mayr records it for Wamal (Princess Marianne Strait) and from Mabaduan and Daru, far east of Merauke; Junge (9) mentions it also for the surroundings of Merauke where it was also seen in 1935. This heron is of regular appearance in the region between the Maro and Bian Rivers and further west to at least the Eilanden River. Though the White-faced Heron was never observed in such large flocks as was sometimes *Notophox picata*, it could be seen each month in Kurik's ricefields and surroundings and along the coast. I also saw some near Kepi, Mappi region (December, 1959). The maximum number met with was about 15 (5th May, 1961 in the ricefields) and six on 26th November, 1960 along the beach between the Kumbe and Bian Rivers, to which the species apparently has more preference than has the smaller *N. picata*.



4. *Notophoyx pacifica* (Latham)

White-necked Heron

Not previously recorded from New Guinea but we observed this striking bird on two occasions in Kurik's ricefields. On 2nd May, 1961 no less than three together were foraging on a wet ricefield of the North polder and about a month later, on 11th June, there was one in similar surroundings in the South polder. Though we did our utmost to secure one, we failed because the birds were very wary and stayed only a short time.

There is no other heron living in this part of the world which can be confused with this species, which precludes any doubt about the identity.

5. *Bubulcus ibis* (Linnaeus)

Cattle Egret

During my stay in south New Guinea all species of *Ardeidae* known from New Guinea were observed except two: *Bubulcus ibis* and *Zonerodius heliosylus*, but they were recorded by me in north-west New Guinea. Representatives of the heron family were of extremely rare appearance during my stay at Manokwari.

The first Cattle Egrets were observed in the morning of 5th December, 1962; there were twelve of them on some trees surrounding a small pasture along the road between the aerodrome Rendani and Andai, some miles south of Manokwari. In the afternoon when passing the same locality, all these birds were feeding near some grazing cattle. Because of leaving Manokwari for a service trip to Oransbary, I could not re-visit the place until towards the end of December and then there were no longer any Cattle Egrets.

However, in the late afternoon of 16th March, 1963, about forty fast flying specimens were observed close to my house at the Agricultural Research Station, several miles outside Manokwari. They apparently returned from a neighbouring area of pastures where 15-20 were present during the ensuing days. Though the birds were very wary, I succeeded in shooting one on 19th March. At about 1 o'clock in the afternoon of 20th March, 25 Cattle Egrets were seen, flying over the Research Station's gardens and on 3rd April there were 22. No further observations were made because I left New Guinea a week later.

From the middle of March an increasing number showed distinct traces of a spring plumage, most clearly present on the occiput and foreneck.

Mayr remarks: "twice recorded from the Papuan Region: Wageu (Stein) and Yamna (Doherty); both probably winter visitors from China or Japan." In view of this statement it seems worth while to publish my observations of such a large number of these egrets, a species with which I am particularly familiar since I studied it in Indonesia together with many other heron-like birds for many consecutive years.

6. *Threskiornis spinicollis* (Jameson)

Straw-necked Ibis

This is not mentioned in Mayr's list but a couple of years ago some were observed in the Australian part of this island by K. R. Slater (16) and by van den Assem (1) in the former Dutch part of New Guinea. In the first case (1st August, 1957) five were seen in the Mekeo Sub-district in a disused ricefield at the edge of an extensive swamp area. One was obtained, and in the second case (June, 1957) a single specimen was seen "amidst a flock of white ibisses" within the area where we made our observations.

I saw the species fairly regularly though observations during the rainy season were rare indeed. During December we have only one record;

during January and March not one and in February only in the period of the 2nd till the 10th (1959). Most frequently it could be seen in September (six times in 1960, three in 1962), In October (four times in 1959, three in 1960), in May (five times in 1962) and in November (once in 1959, twice in 1960). It rarely happened that solitary birds were met with (seven times during three years); as a rule I saw three to ten, but on five occasions there were 18 to 25 (September and October), twice 40-50 (October, November), once about 75 (6th September, 1962) and once 75-100 (3rd September, 1960).

Observations in the ricefields were not at all rare but more often we saw the species within the Gali Ephata marsh and this is also the locality where we observed the largest numbers together. The birds could be found looking for food as often on dry ground as in swampy areas or in shallow water, but I failed to see one along the beach. From a flock of about 40, foraging in a dry marsh, no less than five (all females!) were secured with one single shot (Gali Ephata, 7th November, 1959).

7. *Platalea regia* Gould

Royal Spoonbill

Mayr's list calls the Spoonbill an occasional straggler in New Guinea, known from Port Moresby and the Vogelkop. However, during our stay in south New Guinea I saw spoonbills in almost any month and periodically very regularly and fairly often in large numbers. Observations were most rare in April (1961, one), September (1960, one), January (1959 and 1961, two), July (1959, 1960, two), August (1960, two), November (1960, two), December (1959, 1960, two) and March (1959, 1961, three). Most observations date from the month of October (1959 (1), 1960 (10) and 1962 (1)); in May and February I saw them eight and in June six times. When on my way to Manokwari I saw a solitary spoonbill at Sorong (1st October, 1962).

Observations of solitary birds were not very common (nine times) and also two together were not seen frequently (ten times); generally there were flocks of 5-20 but much larger groups were no exception: on 3rd February, 1960 there were 50 together flying over the mouth of the Maro River quite close to Merauke. Similar flocks were recorded within the Gali Ephata area (27th and 28th October, 1960) and on 17th May, 1961 there were about 60 crossing over the South polder where I had seen about 48 ten days earlier. The largest flock I ever saw in south New Guinea consisted of 150-200 flying from east to west over the South polder on 8th June, 1960 and on 20th May, 1961 there were 11 and 125 flying over the same area in a north-westerly direction. On 31st October, 1960 several small flocks were seen flying over the Gali Ephata swamp in a south-westerly direction.

As a rule the ricefields were visited by small groups only, but on 14th June, 1960, there were 18 in the North polder, on 26th April, 1961, nine and on 6th May, 14 in the South polder. Without exception I saw the birds feeding in shallow water, principally in fresh water but sometimes also on mudbanks along the shore and fairly regularly in the mouth of the Maro River.

On 22nd January, 1961 a specimen was observed apparently in breeding plumage, but generally all spoonbills seen were in non-breeding plumage. On 12th October, 1960 I saw two without even a trace of a crest and four days later about 20 similar individuals along the Kumbe River; they gave the impression of being juveniles, on account of their smaller size, short

bills and well feathered faces. Ten days later (on 27th October) there were about 50 similar birds, mixed with adults with very worn occipital crests.

8. *Dendrocygna eytoni* Gould

Plumed Whistling Duck

There is no certainty that I observed even a single specimen of this duck alive, but it could be recorded on account of material obtained at night in Kurik's ricefields. It was evident that this duck visited the ricefields in April and September, 1959 and in May, 1961. On 17th April, 1959 a female was examined with a well developed ovarium; on 1st September a female and two males and on 3rd September four ♂♂ and four ♀♀ were obtained. Among these birds there were only two females with well developed ovaria and a male shot on 5th September had medium-sized gonads (length of testes about 15 mm.) but two females and one male examined on 9th September showed the reproductive organs poorly developed as was the case with a female on 10th May and two secured on 18th May, 1961.

Altogether 11 females and eight males were examined of which several skins were prepared. Most of these birds had taken rice from a freshly sown crop and they were all secured during periods in which small numbers of *Dendrocygna guttata* and some *D. arcuata* were regular nocturnal visitors to the (wet) ricefields.

Mayr's list mentions only one uncertain specimen recorded by de Vis from Daru Island (June, 1896).

9. *Dendrocygna arcuata* (Horsfield)

Wandering Whistling Duck

Together with *Dendrocygna guttata* this was the most common duck observed during my stay in south New Guinea. Between 16th and 27th January, 1961 about 25 acres of fallow ricefields were visited every night by 1,500–3,000 *D. arcuata* in company of *D. guttata* with maxima of a counted number of about 3,000 during 19th January till 21st and on the 27th. Between January, 1959 and the middle of May, 1961 and during February till June, 1962, I examined 543 *D. arcuata* which were shot in the ricefields at night.

The largest percentage had well-developed gonads during the first three months of the year and several females were found to have fully formed eggs in the oviduct of which some were preserved. This is not the place to publish the results of my study on this and the other species of duck obtained in the ricefields but I should like to emphasize that my experience with *D. arcuata* is in contrast with the supposition made in Mayr's list "in New Guinea possibly largely a winter visitor from Australia". This is also the experience of Rand (15) who obtained 2 ♂ and 1 ♀ at lake Daviumbu (Middle Fly River area) which proved to be in breeding condition. On account of my work on this Whistling Duck I am of the opinion that it must be considered as breeding within south New Guinea, perhaps migrating to Australia when searching for better feeding localities after intensive droughts forced the birds to leave New Guinea, but they should not be considered winter visitors from Australia.

10. *Anas querquedula* Linnaeus

Garganey Teal

Though the Kapara (Mimika) and the Oriomo Rivers are mentioned as the only localities where the Garganey has been found in south New Guinea, this teal proved to be of rather common appearance in the ricefields of Kurik and along the shore between the Maro and Bian Rivers

during the winter months of the temperate zones, though there were considerable annual fluctuations during my stay in New Guinea. The species was found rather numerous during January till March, 1961, within fallow, very wet ricefields as well as along the beach between the Kumbe and the Bian Rivers and also on an experimental rice plot along the Maro River opposite Merauke.

I counted 60–70 specimens on 20th, 24th and 26th January, 1961; on 30th January of that year 75 and on 7th March, 1962 about 150 were seen. Along the shore their numbers were smaller as a rule but on 11th March, 1962 about 100 were counted along the beach.

Generally large flocks within the ricefields were not mixed with other ducks but in smaller groups the birds were often with *Anas superciliosa* and along the beach also with *Anas gibberifrons*. From the examination of stomach and gizzard contents it was evident that these ducks too were looking for rice when in the ricefields, but on the beach they frequented mudbanks under shallow water, no doubt preying on animal organisms.

All individuals examined by me had small gonads; the latest date on which I saw this species in south New Guinea was 7th May.

On 16th January, 1963 I secured a solitary specimen at Manokwari in a small freshwater pool near the aerodrome Rendani. In accordance with Gyldenstolpe (6) Bergman found the species rather numerous on Lake Atinju (Vogelkop) in February, 1948 where five were secured.

11. *Aythya australis* (Eyton)

Australian White-eye

“Once recorded from Waigau or the Vogelkop (Bruyn)” wrote Mayr of this duck, mentioning as habitat “lakes”. It could be observed repeatedly in the ricefields of Kurik but more often along the beach between the Kumbe and the Bian Rivers and apparently it belongs to the regular visitors to that part of New Guinea during the winter of the temperate zones. Beyond January, February, March and April, however, I failed to observe it in this part of New Guinea. This makes it probable that the bird is a straggler from Australia because conditions for waterfowl over there seem most favourable from June.

On the nights of 27th January, 1960 and of 8th April, 1961 single specimens were shot in Kurik's ricefields. The first (♀ with a well granular ovary including several ova of 1–2 mm.) was brought together with 10 *Dendrocygna guttata* and one *D. arcuata*; the second (♀ with very small gonads) in company with five *Anas superciliosa*. Generally I saw the species together with this last duck (in the ricefields), e.g. on 27th March, 1961 five in a flock of 23 *A. superciliosa* and along the beach (e.g. on 19th February and 9th April, 1961) repeatedly several together with all three *Anas* species regularly visiting this part of New Guinea (*A. superciliosa*, *A. gibberifrons* and *A. querquedula*). In the ricefields the species fed on rice and grass seeds but along the shore no doubt on animal organisms.

Probably some small flocks were observed on one of the Anggi lakes (about 1,200 m. above sea-level, Vogelkop, north-west New Guinea) in the first days of March, 1963, but the swimming birds were too far away for me to be absolutely sure of their identity.

When flying *Aythya australis* can be easily recognised from the other ducks visiting south New Guinea because of much white on the remiges.

(to be continued.)

BRITISH ORNITH

INCOME AND EXPENDITURE ACCOUNT FOR

1962	EXPENDITURE	£	s.	d.	£	s.	d.
£							
	"Bulletin" Vol. 83—						
530	Cost of publication, distribution, etc. ..	596	13	8			
129	Less Sales	205	12	5			
					391	1	3
401							
35	Notices, etc. for Meetings				41	19	5
—	Scientific Index				273	19	0
5	Audit Fee				5	5	0
5	Contribution "Zoological Record"				5	5	0
5	Expenses of Guest Speakers				17	19	0
8	Club Guests				6	14	9
16	Projectionist				15	15	0
49	Miscellaneous Expenditure and Postage ..				44	1	0
524					801	19	5
95	Excess of Expenditure over Income, brought down				313	18	6
£95					£313	18	6

BALANCE SHEET

	GENERAL FUND:	£	s.	d.	£	s.	d.
1,353	As at 31st December, 1962	1,353	0	4			
	Less Transfer to Income and Expenditure Account	28	0	5			
					1,324	19	11
	BULLETIN FUND:						
	As at 31st December, 1962	267	5	5			
	Add re Ten Year Scientific Index:—						
	Donations from Members	3	3	0			
		270	8	5			
	Less Transfer to Income and Expenditure Account	270	8	5			
267							
142	SUBSCRIPTIONS 1964 paid in advance				111	1	6
88	CREDITORS				66	3	0
1,850					1,502	4	5
	TRUST FUND:						
	(The Capital of this Fund may not be used.						
	The Income from it is General Revenue.)						
1,000	F. J. F. Barrington Legacy				1,000	0	0
£2,850					£2,502	4	5

C. B. WAINWRIGHT, *Chairman*
P. TATE, *Hon. Treasurer*

We have examined the above Balance Sheet and Income and Expenditure Account and find it to be in accordance therewith, and in our opinion correct.

FINSBURY CIRCUS HOUSE,
BLOMFIELD STREET, LONDON, E.C.2.
14th February, 1964

OGISTS' CLUB

YEAR ENDED 31st DECEMBER, 1963

1962 £	INCOME					£ s. d.	£ s. d.
	SUBSCRIPTIONS:						
265	Members	..	..	..	..	332 2 10	
3	Associates	..	..	..	..	2 2 0	
							334 4 10
	Income Tax recovered under Deeds of Covenant						
53	1962/63	..	..	..	..		49 13 9
	INVESTMENT INCOME:						
	General Fund	..	..	..	..	55 2 8	
108	Trust Fund	..	..	..	..	48 19 8	104 2 4
	Balance, Excess of Expenditure over Income,						
95	carried down	..	..	..	..		313 18 6
<hr/> £524							£801 19 5
	Sales of "Bulletin" for previous years, less						
36	expenses	..	..	..	..		15 9 8
59	Transfer from "Bulletin" Fund	..	..	..	..	270 8 5	
—	Transfer from General Fund	..	..	..	..	28 0 5	
							298 8 10
<hr/> £95							£313 18 6

DECEMBER, 1963

	GENERAL FUND, INVESTMENTS:					£ s. d.	£ s. d.
	4½% Defence Bonds, at Cost	..	..	..	..	1,000 0 0	
	3% Savings Bonds 1960/70, at Cost	..	..	..	..	100 0 0	
						1,100 0 0	
1,080	Less Reserve	..	..	..	..	20 0 0	
	(Market Value £1,089)						1,080 0 0
1	PROJECTOR, LANTERN & SCREEN—Nominal Value						1 0 0
1	STOCK OF "BULLETIN"—Nominal Value						1 0 0
	No value has been included for the stock of the Scientific Index						
2	DEBTORS	..	..	..	..
766	CASH AT BANK	..	..	..	..		420 4 5
<hr/> 1,850							1,502 4 5
	TRUST FUND, INVESTMENTS:						
1,000	3½% War Stock £1,399 11s. 0d.	..	..	..	..		1,000 0 0
	(Market Value £840)						
<hr/> £2,850							£2,502 4 5

with the books and records of the Club and certify them to

W. B. KEEN & Co.,
Chartered Accountants.

British Ornithologists' Club

REPORT OF THE COMMITTEE

- 6 APR 1964

PURCHASED



FINANCE

The accounts for the year 1963 submitted herewith show that expenditure exceeded income by £313, and after setting off against this £15 received from the sales of "Old Bulletins", and copies of the 10 year Scientific Index, there was a deficit for the year of £298.

The reason for this heavy deficit was the cost of the 10 year Scientific Index which was £274, and for which funds had been set aside from donations and the grant.

There are also a number of items totalling approximately £20, which although earned in 1963, payment was not received until 1964, and therefore will appear in the next balance sheet.

The number of new members and subscribers, both in 1963, and so far this year, is encouraging, and will help to wipe out the deficit which the Club has shown over the last few years, as will the members who have renewed or signed new Deeds of Covenant.

of address to the Editor of the London Standard, 11, Abchurch Lane, London, E.C. 4, England.

It is a pleasure to inform you that the above-named work has been accepted for publication in the Standard Library, and will appear in the near future.

The Standard Library is a series of books published by the Standard Book Co., Ltd., 11, Abchurch Lane, London, E.C. 4, England.

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CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

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DINNERS AND MEETINGS FOR 1964

28th April (A.G.M.), 19th May, 15th September, October (with B.O.U.), 17th November, 15th December.

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB



12 MAY 1964
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Edited by
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BULLETIN
OF THE
BRITISH ORNITHOLOGISTS' CLUB



Volume 84

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The six hundred and sixteenth meeting of the Club was held at the Rembrandt Hotel, London, on the 28th April, 1964.

Chairman: Major-General C. B. Wainwright

Members present: 34; guests 6; total 40.

This was preceded by the Annual General Meeting and as the meeting was held a week later than usual, the report of this and the talk given by P. J. K. Burton will appear in the next issue.

Three new birds from Africa

by M. A. TRAYLOR

Received 17th January, 1964

The following three new subspecies of birds were discovered while I was collecting in the Kalabo district of Barotseland, Northern Rhodesia, west of the Zambesi River, and in Ngamiland, on the northern and western edge of the Okavango swamp. The co-ordinates of the localities mentioned are: Liuwa Plain, 14° 36' S., 22° 40' E.; S. Lueti River, 15° 38' S., 22° 06' E.; Sepopa, 18° 47' S., 22° 10' E.

Rhinopomastus aterrimus anomalus subsp. nov.

Type: Chicago Natural History Museum No. 262978, adult male from S. Lueti River on the Angola border, Kalabo district, Barotseland, Northern Rhodesia, collected 29th November, 1961 by M. A. Traylor. Collector's No. 760.

Diagnosis: Differs from all other races in having the bill more slender and wholly black, lacking the pale tomia that are otherwise characteristic of the species. The bill is also somewhat longer than in the adjoining race *anchietae* of Angola, which in other characters it resembles.

Measurements of type: Wing 114; tail 145; bill 39; tarsus 21.5 mm.

Range: Balovale and Kalabo districts of Northern Rhodesia, west of the Zambesi River, from the Lungwebungu River south to the S. Lueti River, and adjoining Angola.

Remarks: As I have noted previously (Traylor, 1960, *Publ. Cult. Co. Diam. Ang.*, Lisboa, 51: 169), *anchietae* is variable within Angola, populations from south of the Cuanza River being larger than those from north. Comparative measurements (mm.) of *anomalus* and the two populations of *anchietae* are:

		Males		
		<i>Wing</i>	<i>Tail</i>	<i>Bill</i>
<i>anomalus</i>	(6)	113–121 (116.0)	145–161 (152.3)	37–39 (38.0)
<i>anchietae</i> —				
south of Cuanza	(4)	115–120 (117.3)	149–162 (154.3)	34, 34, 34
north of Cuanza	(5)	106–111 (108.2)	137, 137, 140	32–37 (33.8)
		Females		
<i>anomalus</i>	(4)	105–109 (106.8)	138, 144	30–31.5 (30.8)
<i>anchietae</i> —				
south of Cuanza	(7)	104–107 (106.0)	130–147 (137.4)	28–29 (28.3)
north of Cuanza	(3)	103, 104, 105	128, 134, 134	28, 29, 30

In wing and tail measurements, *anomalus* is similar to those populations of *anchietae* living south of the Cuanza River, and only differs from them in having a slightly longer bill. However, the shape and colour of the bill are quite distinct. In *anomalus* it is more slender, particularly at the base, the culmen is more arched, and the tomia are black. In *anchietae* and also in the races of *aterrimus* in northern Africa, the tomia are pale horn, giving a quite different appearance. In all those bill characters in which *anomalus* differs from *anchietae*, it shows an approach to the related *R. cyanomelas schalowi* whose range adjoins it to the south.

The species *aterrimus* has only been known from Northern Rhodesia since 1960 when Benson (1960, *B.B.O.C.*, 80: 172) collected two immature males in southern Balovale district, along the Lungwebungu River. I had the opportunity of examining these specimens in the National Museum of Southern Rhodesia in Bulawayo. They are not fully grown so that their measurements are not diagnostic, but they have the wholly black bill of *anomalus* and undoubtedly belong to that form.

South of the range of *anomalus*, *R. cyanomelas schalowi* has been taken at Shangombo on the Mashi River, about 50 miles due south of the type locality. Somewhere in the intervening area the two forms must meet, presumably at the northern edge of the acacia and thorn country to which *cyanomelas* is partial. The relationship between these representative forms, which formerly were kept in different genera, would make an interesting study.

Cisticola chiniana bensoni subsp. nov.

Type: Chicago Natural History Museum No. 263414, adult male from Liuwa plain, Kalabo District, Barotseland, Northern Rhodesia, collected 25th October, 1961 by M. A. Traylor. Collector's No. 138.

Diagnosis: In summer dress, upper parts darker and greyer than *smithersi* of northern Bechuanaland and southern Barotseland; wing distinctly longer. Since *smithersi* itself is a grey race, *bensoni* differs even more strikingly from the adjoining *frater* and *procera*. Similar in size to *fortis*, which occurs as far south as Balovale, but differs strikingly from that race in being much greyer, less ruddy, and in having the upper parts noticeably streaked instead of only mottled. Winter dress unknown.

Measurements of type: Wing 73; tail 66 (mixed S and W); bill 15; tarsus 24 mm.

Range: Known only from the type locality, where it was found in some brushy woods alongside a pan about 25 miles north of Kalabo.

Remarks: Comparative wing measurements of *smithersi* and *bensoni* are:

		♂♂		♀♀
<i>smithersi</i> —Ngamiland	(14)	65–69 (66.6)	(5)	53–57 (55.4)
S. Lueti River	(5)	66–68 (66.8)	(2)	54, 57
<i>bensoni</i>	(3)	70, 73, 73		none available

There is no difference in bill or tarsal measurements between the two races. Tail measurements of birds in summer dress are misleading because pre-nuptial tail moult is irregular, and some of the longer winter rectrices are usually retained.

It is difficult to try to assess either the range or the size of the population of *bensoni*. The only place it was seen around Liuwa plain was in a patch of woods about a mile long and maybe a hundred yards wide that bordered a long, slender pan; the latter was part of the channel of a large river during the rain. Probably because of the proximity of water, the woods here were denser and brushier than the usual patches of open woods around the edge of the plain. The species was not seen elsewhere in the Kalabo district until we were south of the S. Lueti River, and in this case I believe it is truly absent in the intervening country because we made a point of collecting all *Cisticolas*.

The population from the S. Lueti River is intermediate in colour between *bensoni* and *smithersi*, but it is the same size as the latter and I have put it there. It, too, was very local. It was not seen anywhere along the river, but 12 miles south of the river along the Angola border it was abundant where the thorn bush and acacia started. The distribution of this species in Kalabo parallels that of *C. rufilata*; in both cases there was one race in Liuwa plain and a second south of the S. Lueti, the latter in each case being of southern affinities.

Named for Con Benson, whose help in planning my trip and generosity in seconding to me Jali Makawa assured my success.

Ploceus ocularis tenuirostris subsp. nov.

Type: Chicago Natural History Museum No. 263947, adult female from Sepopa, Ngamiland, Bechuanaland Protectorate, 18° 47' S., 22° 10' E., collected 12th February, 1962 by M. A. Traylor. Collector's No. 1517.

Diagnosis: Females differ from females of the adjoining race *crocatus* of Angola and Northern Rhodesia in having a markedly more slender bill, in the reduced black mark through the eye, and in having only a trace of chestnut wash on the throat. Width of bill at base: *tenuirostris*, 3♀♀, 6.0, 6.0, 6.1; *crocatus*, 15♀♀ 6.7–7.5 (7.2). Males are not known.

Measurements of type: Wing 71; tail 59; bill length 20; bill width 6.0; tarsus 22 mm.

Range: Northern Ngamiland, from Sepopa on the north-west side of the Okavango swamp east to Kabulabula on the Chobe River.

Remarks: Roberts (1935, *Ann. Transv. Mus.*, 16: 173) was the first to recognise that there might be a slender-billed race of *ocularis* on the upper Zambesi. He recorded a male (actually a female according to Prozesky, *in litt.*) from Kabulabula that had a bill much more slender than any other specimen in the Transvaal Museum. The range of this slender-billed form cannot be very extensive; birds from further up the Zambesi in the Kalabo district of Barotseland are normal *crocatus*.

The slenderness of the bill of *tenuirostris* is accentuated because it averages longer as well as being narrower than in *crocatus*. Comparative measurements of females are:

		Bill length	Bill width (at base)
<i>crocatus</i>	(15)	17.5–20 (19.0)	6.7–7.5 (7.2)
<i>tenuirostris</i>	(3)	20, 20, 20.5	6.0, 6.0, 6.1

The species was uncommon in Ngamiland and was only seen at Sepopa. First noticed in early February at a time when a rapid rise in the Okavango River sent the water over the flood plain. At this time there was a major influx of ploceids, *Euplectes orix* and *E. axillaris* appearing in large numbers. The two *Euplectes* were preparing to breed, but the *ocularis* specimens are in worn plumage, and may have already bred.

On variation in the Greater Honeyguide *Indicator indicator* (Sparrman)

by P. A. CLANCEY

Received 14th January, 1964

It is generally conceded, following Grant, *Ibis*, 1915, pp. 430, 431, and Friedmann, *U.S. Nat. Mus. Bull.* No. 208 ("The Honeyguides"), 1955, p. 172, that the Greater Honeyguide *Indicator indicator* (Sparrman), 1777: Great Fish R., near Somerset East, eastern Cape Province, is "remarkably uniform throughout its vast range, no subspecies being recognisable" (Friedmann, *loc. cit.*). A recent study undertaken in the Durban Museum of material preserved in southern African collections shows that such a view is not strictly correct, and that marked size-variation occurs in various parts of the range, which appears to have some definite geographical and perhaps subspecific basis. While specimens currently available from some of the critical areas are too few in number to permit of any breakdown of the species into races at the present juncture, I feel that the findings which have resulted from my researches are of sufficient interest to be now placed on record in the hope that other workers more advantageously placed than I will endeavour to bring together further material.

In the topotypical populations of the Cape Province, the wings of fully adult ♂♂ *I. indicator* measure 113.5–116; the tails 72.5–78.5, and ♀♀ wings 106.5–111.5; tails 67.5–70 mm. Populations more or less identical mensurally occur in the Orange Free State, the Transvaal (not eastern lowveld), Swaziland and Natal (interior), northwards to northern and eastern Bechuanaland and Southern Rhodesia in sub-continental South Africa (see table). In the eastern humid lowlands of southern Africa, and particularly the middle and lower Zambesi R. valley, and the valley of its affluent, the Luangwa R., markedly smaller-sized birds are to be found, the wings of ♂♂ measuring 105.5–112.5; tails 65–71; ♀♀ wings 98–104; tails 58–66 mm. Of the material available of this latter assemblage of

TABLE
MEASUREMENTS OF SOME *Indicator indicator* POPULATIONS
FROM CENTRAL, EASTERN AND SOUTHERN AFRICA

<i>Populations</i>	<i>No. of Specimens</i>	<i>Wings</i> ♂♂	<i>Tails</i>	<i>No. of Specimens</i>	<i>Wings</i> ♀♀	<i>Tails (mean)</i>
Cape Province	7	113.5–116 (114.4)	72.5–78.5 (74.3)	6	106.5–111.5 (108.9)	67.5–70 (68.8)
Transvaal (plateau) and Swaziland	12	113–120 (115.7)	70–80.5 (75.3)	10	105–112 (108.9)	65–73 (68.3)
Bechuanaland, S. Rhodesia, Barotseland, N.R.	19	112–117 (114.4)	71–76 (73.8)	11	102.5–113 (108.0)	64–73 (67.3)
N. Rhodesia (except Luangwa R. valley)	7	108–117 (114.3)	68.5–77.5 (74.1)	8	106–114.5 (108.7)	61–72 (67.2)
N. Rhodesia: Luangwa R. valley	18	110–119 (113.2)	67.5–75 (71.1)	12	98–112 (104.9)	58–68.5 (63.2)
Middle and lower Zambesi R. and Shire R. valley, Nyasaland	4	105.5–113 (110.9)	65–71 (68.6)	2	101.5, 103	60, 62.5
Natal (coast) and Zululand, Sul do Save and adjacent Transvaal lowveld	3	109.5–112.5 (111.3)	67.5–71 (69.5)	4	99–104 (102.0)	62–66 (64.1)
Nyasaland (not Shire R. valley), and S. Tanganyika	4	114–118 (115.9)	70.5–79 (76.4)	1	111	67
N. Tanganyika (M. A. Traylor, J. G. Williams, P. A. Clancey)	5	113–118 (114.5)	69–76 (72.6)	2	109, 113	66, 67
Kenya (M. A. Traylor, J. G. Williams, P. A. Clancey)	10	111–117 (113.6)	69–75 (72.6)	12	107–111 (109.2)	63–72 (67.5)
Uganda (M. A. Traylor)	6	114–116 (115.1)	69–75 (72.5)	4	106–110 (109.0)	64–69 (67.0)
Ethiopia: (M. A. Traylor, J. G. Williams)	5	111–117 (114.2)	71–75 (73.2)	2	105 (worn) 109	65, 65

populations, the two smallest birds are remarkably diminutive specimens taken on the 22nd and 26th August, 1952, at some point in the Luangwa R. valley in the Mpika district for Major W. E. Poles (Nat. Mus. S.R. Reg. Nos. 10300, 10301), the wings measuring only 98 and 98.5; the tails 58 mm. in both instances, while the prepared specimens are only about two-thirds of the size of Cape females of similar make. They also show olive and not cadmium yellow shoulder patches. The Luangwa R. valley is a critical area for many birds which exhibit polytypic size-variation, the populations of the valley itself often consisting of small-sized birds which are usually of the same racial taxon as occurs along the south-eastern coastal lowlands of Africa, and which give way in a steep transitional shift along the western aspects of the valley to the more massive birds resident to the north-west and north of the Muchinga Range. The rest of the rather comprehensive sample of *I. indicator* from the Luangwa R. valley (all from Mpika district) shows this transition from small-sized to the larger birds of the plateau populations, thus:—

♂♂ wings 110, 111 (3), 112 (3), 113 (4), 113.5 (2), 114, 115 (3), 119; tails 67.5, 69 (2), 69.5 (3), 70, 70.5, 71 (2), 71.5, 72 (3), 72.5, 74 (2), 75. ♀♀ wings 98, 98.5, 100, 101, 102.5, 105.5, 106.5, 108.5 (2), 109 (2), 112; tails 58 (2), 60 (2), 63, 63.5, 65.5 (2), 65, 66, 68, 68.5 mm.

I believe that a good case could be advanced for considering the Zambesi, Luangwa and south-eastern littoral birds as a distinct small-sized race, but Major Melvin Traylor, of Chicago, has kindly drawn my attention to the existence of similar small-sized birds in northern Angola and the southern Congo (Lualaba R.). Measurements of four birds from this region in the Chicago Natural History Museum are:

♂♂ wings 106, 108; tails 67, 68, 2 ♀♀ wings 95, 97, tails 57, 59 mm.

There seems to be no direct connection between the Zambesi and south-eastern lowland birds and those of the northern Angola and adjacent regions, however, as birds from north-west and north of the Muchinga Range, Northern Rhodesia, are large-sized with wings in ♂♂ generally 114–117; tails 72.5–77.5 (a single ♂ from Kasama has a wing of only 108; tail 68.5). ♀♀ wings 106–114.5, tails 61–72 mm. On *a priori* grounds it seems that we are dealing with a distinct and probably quite stable small form with a wide range over south-central and south-eastern Africa, but the apparent sundering of its range in Northern Rhodesia and much of Nyasaland makes its formal treatment as a geographical race problematical at the present time. Study of the size details of three major blocks of *I. indicator* populations in zoogeographical South Africa for which reasonably good samples are available (see table) will show that size-variation in such populations is conservative, and it is difficult to believe that any central African population would normally show a wider range of mensural variation, especially in view of the fact that the populations from Tanganyika north to Ethiopia and the Sudan are again similar to those of South Africa in size and equally conservative in their range of size-variation. Whether the true relationship between populations of large- and small-sized birds in central Africa is obscured by migratory movements on the part of one or both groups of populations is not known, but Friedmann *loc. cit.* is of the opinion that the species shows no migratory tendency, though seasonal variation in local incidence is on record, and suggests the existence of some movement.

Clearly the marked size-variation in the Greater Honeyguide can be no further dealt with on the basis of existing material. The diminution in individual size in some populations of *I. indicator*, as demonstrated above, is undoubtedly connected to temperature and relative humidity in the biotope, but it may also be in some way associated with some difference in breeding biology, such as an adaptation to enable such populations to exploit a range of smaller hole-nesting host species.

For the loan of material I am grateful to the Directors of the following museums: South African Museum, Cape Town (through Dr. J. M. Winterbottom), East London Museum, the Transvaal Museum, Pretoria (through Mr. O. P. M. Prozesky), and the National Museum of Southern Rhodesia, Bulawayo (through Mr. M. P. Stuart Irwin). Major Melvin Traylor, Associate Curator of Birds, Chicago Natural History Museum, most kindly measured up the series in the Chicago Natural History Museum for me, as did Mr. John G. Williams in respect of the material preserved in the Coryndon Museum, Nairobi, assistance for which I am lastingly indebted.

The lower altitudinal limit of the montane forest birds of the Cameroon Mountain, West Africa

by WILLIAM SERLE

Received 3rd January, 1964

From a study of the literature, notably Reichenow (1892) and Bannerman (1915 and 1930–1951), one would infer that the 3,000 ft. contour marks the lower limit of the montane forest birds of the Cameroon Mountain.

Indeed, although the Cameroon Mountain has attracted many collectors and observers who have recorded what they saw and collected, I can find references to only four true montane forms occurring below the 3,000 ft. contour, namely, *Turdus libyanus nigrilorum* Reichenow at 1,700 ft. (Serle, 1962, p. 125), *Psalidoprocne fuliginosa* Shelley at 2,500 ft. (Young, 1946, p. 381), *Laniarius poensis poensis* (Alexander) at 1,400 ft. (Serle, 1950, p. 620), and *Cinnyris reichenowi preussi* Reichenow at 1,000 ft. (Serle, 1950, p. 625 and 1954, p. 74).

In tropical Africa an altitude of 3,000 ft. is remarkably low for the occurrence of typical montane bird communities (*c.f.* Hall and Moreau, 1962, p. 317 footnote), yet it appears from the notes that follow that such communities exist at even lower altitudes on the Cameroon Mountain, at least on its south-eastern slopes.

The search for montane forms at low altitudes met with most success in the neighbourhood of Saxenhof (4° 6' N., 9° 13' E.). Primary forest no longer exists at Saxenhof (indeed most of the area of the south-eastern slopes of the Mountain below 3,000 ft. has long since been cleared for plantations and native farms) and the montane birds inhabited patches of poor cut-out second growth and shrubbery.

In the following list of birds occurring at or near Saxenhof, a Roman numeral indicates the month of the year of the observation and an asterisk indicates that the record was confirmed by collecting a specimen or specimens. The altitudes were measured with an altimeter.

- Viridibucco coryphaea coryphaea* (Reichenow), 1,700 ft. V*.
Arizelocichla tephrolaema tephrolaema (Gray), 1,800 ft. VIII*, X*, 1,900 ft. VI*; 2,000 ft. XI*, XII*; 2,300 ft. IX*.
Arizelocichla montana (Reichenow), 1,800 ft. X*; 2,000 ft. IX*; 2,200 ft. VIII*.
Turdus libyanus nigrilorum, 1,700 ft. VII*.
Alethe poliothorax Reichenow, 1,900 ft. VI.
Urolais epichlora epichlora (Reichenow), 1,750 ft. XII*; 1,800 ft. X*; 1,900 ft. IX*.
Psalidoprocne fuliginosa, 1,700 ft. IV, VIII, IX, XI.
Coracina caesia preussi (Reichenow), 1,900 ft. VI*.
Laniarius poensis poensis, 1,700 ft. V*, VI*, VII*; 1,800 ft. IX*; 2,000 ft. XI*, XII*.
Zosterops senegalensis stenocricotus Reichenow, 1,700 ft. II*, V*; 1,800 ft. V*, VI*; 2,000 ft. XII*.
Cinnyris reichenowi preussi, 1,700 ft. VII*; 1,800 ft. VI*; 2,000 ft. VIII*.
Cyanomitra oritis oritis (Reichenow), 1,900 ft. VI*; 2,000 ft. IX*; 2,200 ft. VIII*.
Ploceus melanogaster melanogaster Shelley, 1,800 ft. VI*, X*; 2,000 ft. IX*.

Whilst Saxenhof was the most fruitful collecting area, data, set out below were obtained at a few other low altitude localities. With the exception of Debundscha and Idenau, where the anomalous *Psalidoprocne fuliginosa* occurred, all these localities are within a radius of ten miles of Saxenhof and are on the south-eastern slopes of the Mountain.

Heterotrogon vittatum camerunense Reichenow Powo (4° 14' N., 9° 20' E.), 900 ft. IX*.

Campethera tullbergi tullbergi Sjöstedt. West of Buea, 2,800 ft. VI*.

Arizelocichla tephrolaema tephrolaema, Victoria (4° N., 9° 12' E.), sea-level XII*.

Arizelocichla montana, Lisoka (4° 11' N., 9° 17' E.), 1,900 ft. VII*.

Alethe poliothorax, Bonikando (4° 11' N., 9° 12' E.), 2,100 ft. VII, 2,800 ft. VII*.

Psalidoprocne fuliginosa, Idenau (4° 15' N., 8° 59' E.), Debundscha (4° 6' N., 8° 59' E.), Victoria, Powo. *vide infra*.

Laniarius poensis poensis, Ekona, 1,400 ft. VIII*; Lisoka, 1,900 ft. VII*; Bonjongo, 1,500 ft. X*.

Cinnyris reichenowi preussi, Victoria, sea-level VII*, VIII*; Lisoka, 1,600 ft. VII*.

Two members of this group of fifteen forms stand apart from the rest, *Psalidoprocne fuliginosa* and *Cinnyris reichenowi preussi*. *Psalidoprocne fuliginosa* should perhaps not be regarded as a true montane form. It occurs commonly throughout the year, not only on the Mountain but also at sea level on the coast from Victoria westward to Idenau. *Cinnyris reichenowi preussi* is a seasonal local migrant. During the months of June to August, its non-breeding season, it is widely and commonly dispersed in the lowlands in the vicinity of the Mountain. There is no evidence that it occurs at Saxenhof or at any locality lower than 3,000 ft. during the dry season, which is the breeding season.

Disregarding these two anomalous forms there remains a group of montane forest birds whose lower distributional limit on the Cameroon Mountain is the 1,700 ft. contour or thereabouts. Their occurrence at this

low altitude may in the case of certain species be seasonal, but from the scattered (in terms of the month in which observed) nature of the records, it appears that the group as a whole is resident at these altitudes.

The 1,700 ft. contour is scarcely ever transgressed. *Laniarius poensis poensis* perhaps the most abundant and adaptable species of the group occurs as low as 1,400 ft., and there are records (two only) of *Arizelocichla tephrolaema tephrolaema* at sea-level and one record of *Heterotrogon vittatum camerunense* at 900 ft.

In this connection it is instructive to study the distribution of *Turdus libonyanus nigrilorum* the only form of the group which has a lowland representative in continuous distribution with it on the lower slopes of the Mountain. In a series of 41 *Turdus libonyanus* collected by me on the Mountain, the specimens of *Turdus libonyanus saturatus* (Cabanis), (the lowland race) were all taken between sea-level and 1,400 ft. except one at 2,100 ft. and one at 2,300 ft.; the specimens of *Turdus libonyanus nigrilorum* were all taken at altitudes between 3,300 ft. and 9,500 ft. except one at 1,700 ft.; and the intermediates were all taken between 1,200 ft. and 2,000 ft., except one at 2,900 ft., one at 3,200 ft., and one at 3,500 ft. (Serle, 1962, page 125).

There is no clear reason for the abnormally low descent of the montane forest birds of the Cameroon Mountain. A study of the climate of the area (see especially Semmelhack, 1940 and 1942) reveals, for example, no greater differences between the temperature and relative humidity of Duala (a typical locality at sea-level) and Buea (3,000 ft.) than one would expect from the difference in altitude. The rainfall of any locality on the Mountain is related, not to altitude, but roughly to its proximity to Isobi on the coast at the western base of the Cameroon Mountain, a locality with a quite abnormally high annual precipitation (over 10,000 mm.).

One climatic feature which may have a bearing on the distribution of the montane birds is the belt of mist which so often enshrouds the mountain forest. In the rainy season in particular the forest is often sunless and mist enveloped and its foliage is dripping. In the year 1913 Semmelhack (1942, p. 27) records that at Buea in the whole of July and August there was only one day without mist, on many occasions the mist persisted for the whole or almost the whole day, and the average daily sunshine for these two months was less than one hour. It is significant that, as I have often observed, the lower limit of the mist belt on the south-eastern slopes at about 1,700 ft.

Lastly it will have been noticed that many of the species of the montane bird communities of the higher slopes of the Mountain are absent from Saxenhof. The possible reasons for their absence are many. The most obvious is ecological, namely the complete absence from Saxenhof (and from the other low altitude localities mentioned above) of good forest.

There is appended a full list of the montane forest birds of the Cameroon Mountain, with records from my notes of their lower altitudinal limit. There is added the records of other authors when the lower altitudinal limit quoted by them is lower than my own. In most instances the difference is one of a few hundred feet only, and in the case of Reichenow's and Bannerman's records, which were based respectively on Preuss's and Boyd Alexander's collections, the probable reason for the slight discrepancy is that in Preuss's and Boyd Alexander's day, the forest extended lower in the vicinity of Buea than it does now.

- Francolinus camerunensis* Alexander, 4,800 ft.
Columba arquatrix sjöstedti Reichenow, 6,000 ft.
Apolopelia larvata inornata Reichenow, 4,000 ft.
Heterotrogon vittatum camerunense Reichenow, 900 ft.
Viridibucco coryphaea coryphaea Reichenow, 1,700 ft.
Campethera tullbergi tullbergi Sjöstedt, 2,800 ft.
Mesopicos ellioti johnstoni Shelley, 4,800 ft. Boulton and Rand (1952), 4,500 ft.
Pseudoalcippe abyssinicus monachus (Reichenow), 3,200 ft. Reichenow (1892), 3,000 ft.
Phyllastrephus poensis Alexander, 3,500 ft. Bannerman (1915), 3,000 ft.
Phyllastrephus poliocephalus (Reichenow), 4,000 ft. Reichenow (1892), 3,900 ft.
Arizelocichla tephrolaem tephrolaema (Gray), Sea-level.
Arizelocichla montana (Reichenow), 1,800 ft.
Alseonax adustus obscurus Sjöstedt, 3,500 ft.
Trochocercus albiventris albiventris Sjöstedt, 3,300 ft.
Turdus libonyanus nigrilorum Reichenow, 1,700 ft.
Geokichla crossleyi (Sharpe), 5,000 ft.
Cossypha isabellae isabellae Gray, 3,500 ft. Bannerman (1915), 3,000 ft.
Alethe poliothorax Reichenow, 1,900 ft.
Seicurus herberti herberti (Alexander), 4,200 ft. Bannerman (1915), 3,000 ft.
Bradypterus mariae camerunensis Alexander 3,300 ft. Bannerman (1915), 3,000 ft.
Apalis cinerea cinerea (Sharpe), 3,600 ft. Bannerman (1915), 3,000 ft.
Urolais epichlora epichlora (Reichenow), 1,750 ft.
Poliolais lopesi alexanderi Bannerman, 3,500 ft. Bannerman (1915), 3,000 ft.
Cisticola discolor discolor Sjöstedt, 3,500 ft. Boulton and Rand (1952), 3,000 ft.
Psaldiprocne fuliginosa Shelley, Sea-level.
Coracina caesia preussi (Reichenow), 1,900 ft.
Laniarius atroflavus atroflavus Shelley, 3,300 ft. Reichenow (1892), 3,000 ft.
Laniarius poensis poensis (Alexander), 1,400 ft.
Dryoscopus angolensis boydi Bannerman, 4,200 ft.
Malaconotus gladiator (Reichenow), 4,500 ft. Reichenow (J. F. O. 1892, page 441), 3,000 ft.
Onychognathus walleri preussi Reichenow, 4,000 ft. Reichenow (1892), 3,000 ft.
Zosterops senegalensis stenocricotus Reichenow, 1,700 ft.
Speirops lugubris melanocephalus (Gray), 6,000 ft.
Cinnyris reichenowi preussi Reichenow, Sea-level.
Chalcomitra ursulae (Alexander), Grote (1948), 3,000 ft.
Cyanomitra oritis oritis (Reichenow), 1,900 ft.
Ploceus insignis insignis (Sharpe), 4,000 ft. Reichenow (1892), 3,600 ft.
Ploceus melanogaster melanogaster Shelley, 1,800 ft.
Cryptospiza reichenovii reichenovii (Hartlaub), 3,200 ft. Bannerman (1915), 3,000 ft.
Nesocharis shelleyi shelleyi Alexander, 4,000 ft.

- Poliospiza burtoni burtoni* (Gray), 5,500 ft. Boulton and Rand (1952), 4500 ft.
- Linurgus olivaceus olivaceus* (Fraser), 3,400 ft. Boulton and Rand (1952), 3,000 ft.

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On the taxonomy of *Athene noctua* in Israel

by JAMES M. HARRISON and HAIM HOVEL

Received 8th January, 1964

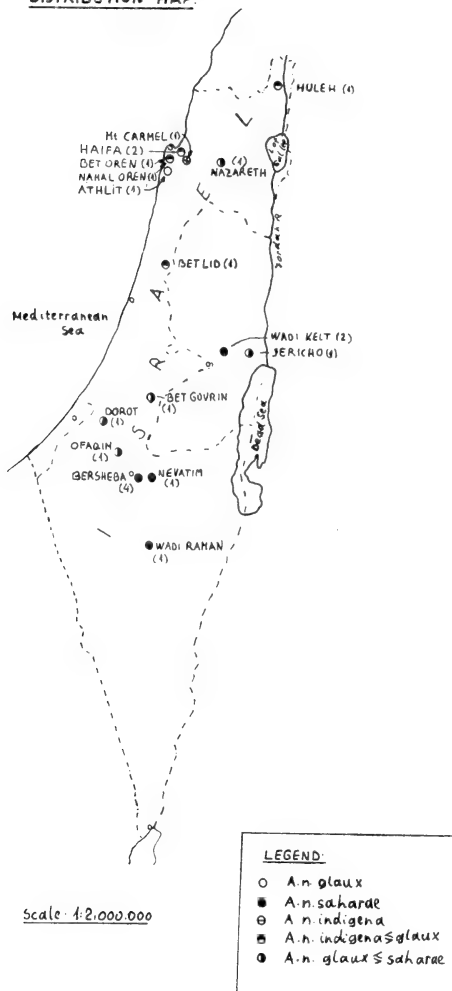
The taxonomic position of *Athene noctua* (Scopoli) in Israel is by no means simple. Adding to the difficulties is the fact that the species is extremely variable; this variability is at times apparent even in the field and Dr. Mendelssohn informs us (*in litt.* 12.11.63) that he saw a pair during the late winter, sitting close together on a telephone wire near Tel Aviv, one looking very light, the other quite dark.

Israel by virtue of its geographical situation would undoubtedly favour an exchange of genes with certain contiguous races. The principal of these being the Balkan form *Athene noctua indigena* C. L. Brehm to the north, as well as to the west on those eastern Mediterranean islands lying just off shore, while to the south in the delta of the Nile a probable influence by the resident form there *A. n. glaux* (Savigny) has to be recognised. Again on the Arabian peninsula the widely distributed *A. n. saharae* (Kleinschmidt) most certainly infiltrates into the desert country of the southern half of Israel, and there is also evidence that this form has extended northwards along the shores of the Dead Sea and into the northern Ghor where specimens have been collected in the Jericho district of the Wadi Kelt.

The taxonomic position as set out by Dementiev (*et al.*, 1951) and Meinertzhagen (1954) needs to be re-examined in the light of the above

considerations. Peters (1940)* accepted the form *A. n. lilith* Hartert tentatively though this race is regarded as a synonym of *A. n. saharae* by both Dementiev (*loc. cit.*) and Meinertzhagen (*loc. cit.*). It should, however, be noted that many of the birds examined in the British Museum series by one of us (J. M. H.) from the southern half of the Arabian peninsula were

DISTRIBUTION MAP



conspicuously paler than toponotypical *A. n. saharae*. We would stress the desirability of re-examining *A. n. lilith* on a more extensive material and would meanwhile support the tentative opinion of Peters (*loc. cit.*) in recognising the validity of Hartert's race. No doubt this form, as is true of all forms of this species, will be found subject to considerable individual variation as well as to the effects of secondary intergradation with neighbouring races.

While the series from Israel upon which this communication is based is admittedly not extensive, it is, nevertheless, our considered opinion that it demonstrates clearly that the taxonomic position of the species is not as simple as has been implied by the authorities cited, and that there is in effect considerable evidence of a gene-flow between the forms mentioned.

This is more in evidence in the northern half of the country where there is, without any question, considerable intergradation of the resident population with *A. n. indigena*. Our rather limited material also suggests strongly that the population in the desert country of the southern half of Israel tends to be phenotypically far more constant. This constancy would seem to be preserved also in the birds of the depression of the Dead Sea, an area which is, after all, to be regarded as a continuation of the great rift valley in character typical of arid rocky desert.

SUMMARY AND DISCUSSION

The populations of *Athene noctua* in Israel would seem to present certain significant morphological differences, which cannot be entirely satisfactorily explained as due to individual variation only.

The wide differences of habitat from the fertile agricultural country of the northern half, in marked contrast to the arid desert country of the south, and of the Dead Sea depression, would doubtless account for the greater morphological constancy of the populations in these regions of Israel where the effects of secondary intergradation are less apparent than in the north.

A most interesting and extremely pale population is to be found in the Ghor country east of Jericho: the birds here are paler than toprotypical *saharae* and can only be matched in this respect by individuals from the central and southern areas of Arabia. They are in no way typical of the majority of individuals from Israel. Hartert (1912-21) gave as the distribution of the race *A. n. lilith*, Palestine (which at that time included the Wadi Kelt, now in Jordan), Mesopotamia (upper Euphrates) and south-west Persia. Hartert (1925) comments "Col. Meinertzhagen, *Ibis*, 1924, p. 618, says that *lilith* and *saharae* are the same, in which case, however, he should have called all the desert birds *saharae*, not *lilith*, the former name having been published 1909, *i.e.* four years before *lilith*."

Spreading our 29 *saharae* side by side with 15 *lilith*, it is obvious that the latter average much paler, especially the heads being lighter; only 3 of our 15 could be mistaken for *saharae*, while only 2 of our *saharae* would be called *lilith* if their origin was unknown. Possibly, if I had had all this material available in 1913, I would not have named *lilith*, but it seems wiser not to unite it with *saharae*". It is our opinion that the validity of this race deserves re-assessment.

Our determination of the 21 specimens is as under:—

No.	Coll.	Locality	Date	Designation
1.	H.H. 29	Athlit	19.1.52	<i>A.n. glaux</i>
2.	H.H. 62147	Haifa	7.5.62	<i>A.n. indigena</i> \approx <i>glaux</i>
3.	H.H. 59203	Bet Oren	9.10.59	<i>A.n. indigena</i> \approx <i>glaux</i>
4.	H.H. 62144	Bet Govrin	5.5.62	<i>A.n. glaux</i> \approx <i>saharae</i>
5.	H.H. 614	Bersheba	15.4.57	<i>A.n. saharae</i>
6.	H.H. 59085	Bersheba	23.4.59	<i>A.n. saharae</i>
7.	J.M.H.I.L. 19	Mt. Carmel	5.10.59	<i>A.n. indigena</i>
8.	J.M.H.I.L. 37	Nahal Oren	8.10.59	<i>A.n. indigena</i> \approx <i>glaux</i>

No.	Coll.	Locality	Date	Designation
9.	J.M.H. (H.H. 205)	Huleh	9.10.54	<i>A.n. indigena</i> \geq <i>glaux</i>
10.	J.M.H.IL. 61	Haifa	11.4.61	<i>A.n. indigena</i> \geq <i>glaux</i>
11.	J.M.H.IL. 62.33	Bersheba	27.4.62	<i>A.n. saharae</i>
12.	J.M.H. (H.H. 401)	Nevatim	24.3.56	<i>A.n. saharae</i>
13.	AV. 18L. Tel-Aviv Univ.	Wadi Kelt	15.11.44	<i>A.n. saharae</i> though paler than <i>saharae</i>
14.	AV. 3399 Tel-Aviv Univ.	Bet-Lid	28.5.57	<i>A.n. indigena</i> \geq <i>glaux</i>
15.	AV. 3539 Tel-Aviv Univ.	Dorot	22.2.59	<i>A.n. glaux</i> \geq <i>saharae</i>
16.	H.H. 62167	Bersheba	8.6.62	<i>A.n. saharae</i>
17.	H.H. 63172	Ofaqim	8.6.63	<i>A.n. glaux</i> \geq <i>saharae</i>
18.	AV. 794 Tel-Aviv Univ.	Wadi Raman	-4.52	<i>A.n. saharae</i>
19.	BM. No. 1946.63.7	Jericho	8.11.44	<i>A.n. glaux</i> \geq <i>saharae</i>
20.	BM. No. 1946.3.5	Wadi Kelt	5.11.44	<i>A.n. saharae</i> though paler than <i>saharae</i>
21.	BM. No. 1925.6.14.1	Nazareth	19.7.21	<i>A.n. glaux</i> \geq <i>saharae</i>

Acknowledgements:

Our thanks are due to Professor H. Mendelssohn of the Tel Aviv University for the loan of material, and for his kind interest, also to Mr. J. D. Macdonald, Director of the Bird Room, British Museum (Natural History), London, for providing us with facilities to study the series in the collection there.

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On birds new for New Guinea or with a larger range than previously known

by A. HOOGERWERF

(continued from page 77 — April 1964)

12 *Aquila audax* (Latham)

Wedge-tailed Eagle

It seems logical that the very small range as indicated by Mayr "south New Guinea, between the Oriomo River and Gaima, mouth of Fly River" is too restricted for such a large bird of prey. In any case I have found this eagle of fairly regular appearance in the part of New Guinea with which I am most familiar.

We not only observed it at Kurik and surroundings, inclusive of the ricefields, but also at the Paal Putih area along the mouth of the Maro River opposite Merauke.

On 13th December, 1960 I saw a young one hardly able to fly consuming a flying fox (fruit bat) when sitting on a high tree just east of the South polder. Both adults were in the same tree and this observation makes it almost certain that the Wedge-tailed Eagle may be breeding there.

* Peters stated "*A. n. lilith* is somewhat intermediate between *saharae* and *bactriana*, sometimes placed in the synonymy of one, sometimes of the other; perhaps best recognised tentatively." Cf. also Hartert, *Nov. Zool.* 32, 1925.

13 *Circus spilonotus* Salvadori and D'Albertis Papuan Harrier

Because in many cases I did not succeed in identifying the females and young of this beautiful harrier I will largely restrict myself in this paper to observations of adult males which are easily recognisable and may be considered the most striking birds of prey in New Guinea. Most specimens were seen above the Gali Ephata marsh and in an extensive marsh north of the North polder, especially when they were flooded; observations in the ricefields were less common.

Such adult males were observed in October, November and December, 1959; in January, March and November, 1960; in January and February, 1961 and in April, 1962. On 31st October, 1959 I am almost certain of having observed a female at the same locality where a male was seen a day later; on 17th December there was another male and on 2nd January, 1960 a male was chased away by a *Haliastur spheurnus*. Between May and September (dry season) I did not see any for all I know.

On 20th November, 1960 a male was observed above a dry savannah near Kurik where a male and female were found together on 29th April, 1962. On 20th January and 8th February, 1961 there was a male above very wet fallow ricefields in the South polder, but notwithstanding all my efforts to secure the bird I failed as I had done several times before.

According to Mayr's list the species was only known from far east New Guinea, not further west than Yule Island, some distance north-West of Port Moresby, but afterwards it was recorded in the Wisselmeren Region (Junge, 9) and also in the Western Highlands (Gyldenstolpe, 5).

14 *Circus approximans* (Bonaparte) Swamp Harrier

During May to September—the period during which I failed to note males of *Circus spilonotus*!—observations of “brown Harriers” were rather common above the ricefields and surrounding marshes and savannahs, which no doubt for the greater part belonged to this species, though observations of adult specimens remained restricted to a very limited number (on 5th May, 21st June and 11th September, 1962). On 8th May a young bird was shot and at that period similar juveniles were seen at regular intervals. On 14th May there were at least three, perhaps four, above a ripening rice crop in the South polder. On 25th 28th and 30th May again two or three, and on 26th May a second one was shot but not secured owing to the high paddy in which it fell. At the beginning of June two or three were seen above the ricefields as was the case in August and early September, 1962.

Because of the difficulty of distinguishing juveniles of both these harriers when in the field, I am not quite certain that all particulars published here indeed refer to *approximans*, but the observation of adults and the fact that we secured a juvenile of the species, make it certain that *approximans* does occur in the area.

My identification of this particular bird was confirmed by Dr. G. F. Mees, though we are both of the opinion that in certain cases it must be very difficult to classify sub-adults of both these species.

In contradistinction to *Circus spilonotus* which proved to be an uncommon visitor to the ricefields, even when they were inundated, *approximans* was a rather common visitor to such a habitat. Most were observed hunting over dry ricefields just before or after harvesting took place,

probably preying on rats. The killed bird had the crop full of remains of such rodents and the stomach cram-full of hair and bones of fieldrats. *Circus spilonotus* was most often seen flying over inundated areas.

Mayr's list mentions "south New Guinea" as the range of *Circus approximans* without giving any exact particulars about the extent of its range.

15 *Elanus caeruleus* (Desfontaines) Black-winged Kite

Mayr does not mention this bird of prey for New Guinea, but it is mentioned by Mayr and Gilliard (11) for the Central Mountains which is the only locality in New Guinea where it was previously known.

We observed this beautiful kite on many occasions, e.g. in May, 1959, in August, September, October, November and December, 1960, in April and June, 1961 and in April, May, June and September, 1962. Generally solitary birds were seen above or around open plains (ricefields and savannahs) but on 16th August and 19th November, 1960, on 20th and 29th April and on 22nd June, 1962, two adults together were observed, almost without exception in different localities.

A secured specimen was found on 13th May, 1962 between coconut palms along the beach, not far from the place where I had obtained another a couple of weeks earlier. Our first bird—a juvenile—was shot in the North polder on 24th September, 1960.

On account of the absence of dark markings on the under wing-coverts and because of the darker upper parts and wings I consider the collected specimens and those observed to belong to this species, until now only known from the Central Highlands where, at an altitude of 5,200 feet, it was found a not uncommon resident. Though there is a possibility that our birds belong to a new subspecies, the difference in altitude where the species has been found in this country does not make this significant because we know representatives of the same race (*hypoleucus*) on Java from sea-level up to the highest mountains of that island, about 10,000 feet above the sea.

16 *Falco cenchroides* Vigors and Horsfield Nankeen Kestrel

Two subspecies of this falcon are known from New Guinea, including the Aru Islands: *cenchroides* from the latter locality and *baru* from the Oranje Mountains. For this latter race Mayr remarks "Cliffs in the mountain grasslands above 3,200 m." I do not know to which form the birds which we observed belonged because I did not succeed in securing one. In my experience the species is very rare in those parts of the lowlands of south New Guinea that we know, for there are only three definite observations and all during August.

On 5th and 19th August, 1960, a solitary bird was seen hovering above the savannah region of Paal Putih along the mouth of the Maro River opposite Merauke and on 4th August, 1962 I saw one sitting on a telephone pole quite close to the aerodrome of Merauke where the evacuation of women and children from south New Guinea was carried out and the place visited perhaps by more people than ever before!

All observations took place during very dry periods. Van den Assem (1) mentions the species for Ifar near Hollandia, also a locality at a low altitude; he wrote of regularly having observed a pair during June and July, 1957.

(to be continued)

10/20/1918
The following is a list of the names of the persons who have been appointed to the various positions in the office of the Secretary of the Navy, and who have been assigned to the various divisions of the office.

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CONTRIBUTORS

Contributions are not restricted to members of the B.O.C. and should be addressed to the Editor, Mr. John Yealland, The Zoological Society of London, Regent's Park, London, N.W.1. These should be concise and typed on one side of the paper, double-spaced, with a good margin. The first time a species is mentioned, the scientific generic and specific names should be included. Subsequently the same name need only have the initial letter of the genus. Scientific names are printed in italics and should be underlined in the typescript. References should be given at the end of the paper.

Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

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Other correspondence should be addressed to the Hon. Secretary, Mr. C. J. O. Harrison, c/o The Bird Room, British Museum (Natural History), Cromwell Road, London, S.W.7.

DINNERS AND MEETINGS FOR 1964

19th May, 15th September, October (with B.O.U.), 17th November, 15th December.

nd Section

BULLETIN

OF THE

BRITISH ORNITHOLOGISTS' CLUB



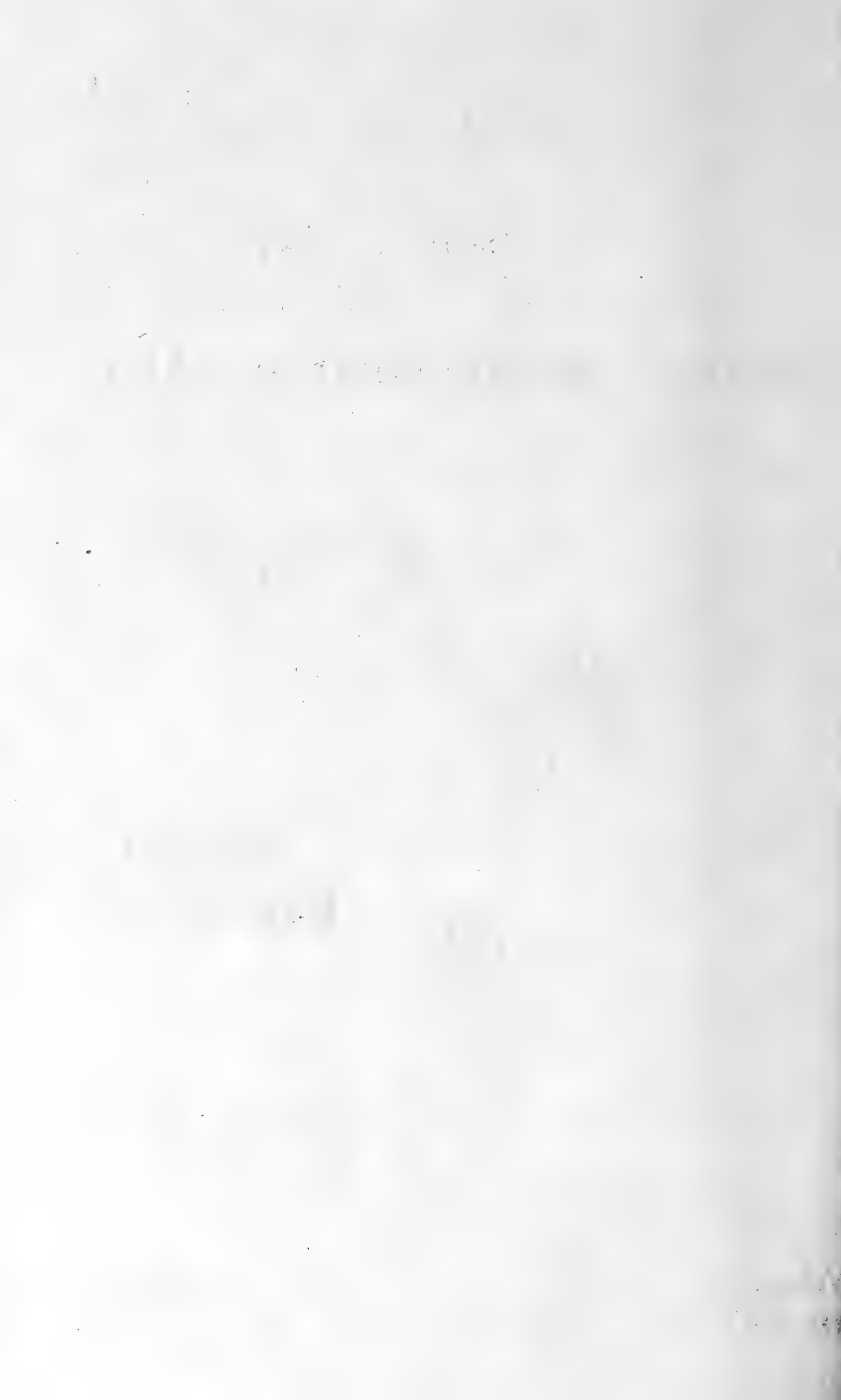
Edited by
JOHN J. YEALLAND

- 4 SEP 1964

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Volume 84
No. 6

September
1964



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- 4 SEP 1964

OF THE

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The six hundred and seventeenth meeting of the Club was held at the Rembrandt Hotel, London, on the 19th May, 1964.

Chairman: Sir Landsborough Thomson

Members present 19; guests 6.

M. Jean Delacour, who has kindly supplied the ensuing summary, addressed the meeting on the subject of

Pheasants

What we commonly call pheasants do not constitute a family, subfamily or even a tribe. The name designates fairly arbitrarily those genera of the Phasianinae containing birds of large size with long or moderately long tails, the males being adorned with ornamental features such as brilliant or elegantly marked plumage. Partridges, francolins and other game birds of the subfamily are for the most part smaller or less conspicuously coloured: the *Tetraogallus* and *Tetraophasis* are almost as large as any, but they have the shape and proportion of partridges. The beautiful *Rollulus* and *Haematortyx* would be called pheasants if their size was greater and their tails longer; so might the spurfowl.

But to conform to long established tradition, we shall mention here only the conventional pheasants that have been included in my *Pheasants of the World* (1951). These wonderful birds are very easily classified within 16 well characterised genera, certainly related, but not very closely, and readily recognised.

Ithaginis and *Tragopan* are nearest to the partridges, though very different one from another. *Pucrasia* is probably somewhat intermediate between *Tragopan* and *Lophophorus* and all live at high altitudes in the Himalaya and mountains of China.

Gallus is an isolated genus of four tropical species and the nearest relative is probably *Lophura* which has a similar range and which was formerly divided into a number of genera more alike to one another than to any others of the group (*vide The Ibis*, 1949, pp. 188-94).

Crossoptilon is perhaps allied, but not very closely, to both *Lophura* and *Lophophorus*, and *Catreus* a monotypic genus of the Himalaya, is probably fairly near.

The five species of *Syrmaticus* superficially rather resemble *Phasianus*. The two species of *Chrysolophus* are highly specialised and stand somewhere, if distantly, between *Phasianus* and *Polyplectron*. *Polyplectron* is certainly related to the remarkable *Rheinartia* and *Argusianus*: there is a presumed *Argusianus* known only by two feathers.

The large and gaudy *Pavo* (two species) is no doubt related to the more primitive and far less spectacular *Afropavo*.

Annual General Meeting

The seventy-second Annual General Meeting of the British Ornithologists' Club was held at the Rembrandt Hotel, London, at 5.30 p.m. on Tuesday, 28th April, 1964, with Major-General C. B. Wainwright in the Chair.

The minutes of the last Annual General Meeting, held on 16th April, 1963, were read and confirmed.

The Report of the Committee and Accounts for the year 1963 were discussed. The Chairman pointed out that after taking the donations, the Royal Society grant and the sales of the 10-Year Scientific Index into account, we had only a deficit of about £20. The adoption of the Report and Accounts was moved by Captain C. R. S. Pitman and seconded by Mrs. B. P. Hall. A vote of thanks to Messrs. W. B. Keen and Co., the Auditors, was proposed by Mr. P. Tate and seconded by Dr. J. M. Harrison.

The election of Mr. C. J. O. Harrison as Honorary Secretary *vice* Dr. J. G. Harrison, who was retiring after two years in office was proposed by Mr. P. Tate and seconded by Sir Hugh Elliott.

The election of Sir Hugh Elliott and Mr. M. L. R. Romer to fill the two vacancies on the committee caused by Mr. C. J. O. Harrison's election to Secretary and by Mrs. P. V. Upton retiring in rotation was proposed by Dr. J. G. Harrison and seconded by Mrs. Boyd Watt.

A letter from the Rembrandt Hotel was read stating that as from 1st September, 1964, the cost of a dinner would be 21s. per person, the entire account being subject to 10% in lieu of staff gratuities. A discussion about a possible change of venue took place, bearing in mind the special facilities granted us by the Rembrandt Hotel. It was agreed that the Committee would consider this further and call an extraordinary general meeting if necessary; meanwhile bookings at the Rembrandt would be confirmed until December, 1964, with provisional bookings to May, 1965.

In view of the B.O.U. one-day symposium which was to take place on Saturday, 7th November, it was agreed that the Club would hold meetings in both October and November on its usual dates.

Captain C. R. S. Pitman then moved a vote of thanks to all the officers of the Club for their work during the year and particularly to Dr. Jeffery Harrison, who was retiring after 12 years in office, having edited the Bulletin for ten years prior to becoming Honorary Secretary. Captain Pitman's motion was carried with acclaim.

Check-list of Birds of the World

Volume X, edited by Ernst Mayr and Raymond A. Paynter, Jr., has now been published by the Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, at the price of \$10.

This volume includes the *Prunellidae* and part of the *Muscicapidae* (*Turdinae*, *Orthonychinae*, *Timaliinae*, *Panurinae*, *Picathartinae* and *Poliophtilinae*). There is an addendum dealing with *Psilorhamphus* of the *Rhinocryptidae*.

Here follows a summary of the talk given by Mr. P. J. K. Burton at the meeting held on 28th April.

A marsh on the Caspian

In the summer of 1963, a party sponsored by University College, London travelled to the south-east Caspian to collect information on the general ecology of the coast, with special reference to waders. The journey was by rail and road through Turkey, entering Iran near Mt. Ararat, and from Teheran across the Elburz Mountains to the Caspian.

The party set up camp on 12th August at Bandar-i-Gaz. This town is situated at the eastern end of the Gorgan Lagoon, an area of water about thirty miles long and seven wide, almost cut off from the rest of the Caspian by the Meyan Kaleh peninsula. It is shallow and its coastal waters near Bandar-i-Gaz were brackish.

The camp site was at the landward end of a marsh about half a mile wide and two miles long, flanked inland by extensive cotton fields. A succession from Tamarisk to *Salicornia* to *Juncus maritimus* at the water's edge prevailed over most of the area. Several drainage dykes ran onto the marsh, and where they emptied, grass and *Phragmites* grew. Sampling of mud and water in the various places visited by waders revealed a paucity of animal species. Despite this, at least 38 species of waders were seen, and for more than half of these it was possible to form some picture of the ways in which interspecific competition was avoided in this area. This was done by recording the occurrences of each species in various parts of the marsh, by observation of methods of food getting, and by collecting stomach contents.

A subsidiary aim of the expedition was to carry out a programme of ringing. This was mainly confined to waders and to Yellow Wagtails roosting in a large bed of *Phragmites*, and was carried out by mist-netting in the morning and evening.

Some aspects of nesting behaviour in *Estrilda*

by DEREK GOODWIN

Received 27th November, 1963

The typical waxbills of the genus *Estrilda* (*sensu strictu*, see Harrison 1962) differ from other waxbills by, *inter alia*, building nests with a more or less projecting tubular entrance and with a dummy nest, or "cock nest" on top of or (*trogodytes* only) at the side of the real nest. The degree to which the entrance forms a tube varies among the different species and, within a species, cock nests may be present or absent (at least

according to the records in the literature) although the possibility that in some cases of absence a cock nest may have been destroyed without the real nest being damaged must not be overlooked. Nests of this type (with cock nests) have been recorded for *Estrilda astrild* (Belcher 1930, Van Someren 1956, McLachlan and Liversidge 1957); *E. troglodytes* (Shuel 1938), *E. nonnula* (Mackworth-Praed and Grant 1960), *E. erythronotos* and *E. paludicola* (Vincent 1949) and *E. melpoda* (Holman, in Bannerman 1949). Cock nests appear not to be recorded for *E. caerulescens*, *E. perreini* or *E. melanotis*, species whose plumage characters suggest that they may be less closely related to any of the known cock nest-builders than these latter are to one another. Surprisingly, cock nests are not recorded for *E. rhodopyga*, an unquestionably very close relative of *astrild* and *troglodytes*. It seems probable, however, that most or all extant descriptions of the nest of *rhodopyga* derive from Chapin's (1954) account of a single nest that he found and, if so, do not necessarily prove that this species does not sometimes, or even usually, build cock nests in the wild as it does in captivity.

Kunkel (1959) described the breeding behaviour of *E. troglodytes* and *E. melpoda* in captivity. He recorded that *troglodytes* placed on the outside of the nest bits of paper, morsels of wet earth, feathers, etc. that were either pale or shining and that *melpoda* did likewise, but used darker-coloured though otherwise similar materials. He suggested that this probably served to camouflage the nest under natural conditions. Such behaviour in the wild seems not to have been recorded. This is, most probably, because the materials used in the wild to help to conceal the nest, if noticed by the human finder, are thought by him to have got there adventitiously, and so to go unrecorded.

In recent months I have been able to watch a great deal of nesting behaviour from a male Rosy-rumped Waxbill *E. rhodopyga* paired to a female Black-rumped Waxbill *E. troglodytes*. These birds are kept in a small well-lighted room fitted up for observation from outside (see Goodwin 1959 for details). There were other waxbills of various species also in the room. This pair have, so far, built five nests on the floor in a corner and four in a globular wicker basket which has a frontal entrance hole and which is fixed in some branches about five feet high. Eggs have been laid each time but have usually been deserted by the female (and subsequently by the male as well) either immediately after laying or after 8 to 10 days of incubation. The last clutch, laid in late September 1963 in a floor nest were incubated for nearly four weeks but none hatched.

Although this pair have not yet bred successfully there is no reason to suppose that such reproductive behaviour as they have performed differs in kind from that of wild members of their species. In describing the behaviour the term "decorating" will be used for the adding of feathers and materials (other than those playing an essential part in its construction) to the outside of the nest. It is not, of course, intended to imply thereby that decoration is the aim of the birds.

Description of nest

Three floor nests were examined carefully and cut open after the birds had deserted them. In each case the nest was constructed of grass stems, mostly with blades and/or seeding heads attached. Some stems of other

herbage such as chickweed and knot grass were also used but to only a minor degree and had perhaps been taken in default of suitable grass. The walls of the nest cavity were about an inch thick and surprisingly compact and tough compared with nests of *Uraeginthus* spp. or *Lagonosticta rubricata*. The nest lining was entirely of grass, chiefly of finer stems and seeding heads. The entrance hole was very small and was surrounded by many sharp ends of grass stems, so that it was impossible to insert a finger without some of the grass ends "stabbing" it. However, not all the stems used for the entrance tube had been placed in such positions. In no instance were feathers or any other decorating material found inside the real nest.

The outside of the nest, particularly the upper part immediately in front of the entrance to the cock nest, was decorated with: (1) Body feathers of domestic chickens, ducks, crows and pigeons; white or iridescent black ones being preferred to brown or other neutral colours; (2) pieces of soft tissue paper, shiny grease-proof paper and charred, blackened paper but not pieces of newspaper of similar size which were also available; (3) small clumps of earth, both dry and damp, a very strong preference being shown for those pieces bound together with a few rootlets, some of which protruded. Some of all these types of objects, but chiefly feathers, were also placed inside the cock nest. The nests built in the basket were, of course, deficient of decoration as it was not possible for the birds either to build a cock nest on top or to make decorations stay in place. The effect this had on their behaviour will be described later.

Building and behaviour at the nest

The female was seen on two occasions to carry a grass stem and build it into the nest: otherwise only the male was seen building the real nest; but in all cases I was not able to watch the greater part of the nest being built so it is quite possible that the female did more building than this. Both sexes were seen to bring grass and build it into the cock nest; both were equally zealous in decorating the outside of the nest and both were seen to take feathers into the cock nest. The shuddering movement (German *einzigeln*) which is used by most birds to fix nesting material was thought by Kunkel (1959) to be absent in the Estrildidae. I also have not observed it in actual nest building by any waxbills I have kept, but both of this *Estrilda* pair regularly used it when decorating the nest.

When building in the basket the birds found it impossible to make any of the decorations stay in place in spite of repeated endeavours. On a few occasions both were seen to take a feather or piece of tissue *into* the nest after having repeatedly tried in vain to lodge it on top of the basket. I think decorating is essentially nest lining behaviour that has become redirected towards the outside of the nest. To a large extent the materials used are similar or identical to those used by other estrildines for nest lining. As with nest lining in other waxbills, decorating is done equally by both sexes and continues throughout incubation. Feathers are also placed as lining in the cock nest although I had the impression that exterior decoration usually took precedence.

When incubating both birds were very nervous. Not only would the sitting bird leave the nest and fly up into the branches at any alarming stimulus such as my entering the room, or the rattling of the door handle,

or intense alarm notes from any of the other waxbills, but also a heavy footstep on the landing outside the room would cause it to come out. This surprised me as the birds are thoroughly used to people walking outside and to other household noises and usually pay no attention to them. In these cases, however, the bird did not fly from the nest: it just came out of the entrance tube, looked around very attentively in all directions for a few moments and then turned and re-entered. Possibly this is an innate response whose function is to save the biologically more valuable adult from the risk of being crushed should a large mammal tread on the nest. The degree of substrate tremor conveyed through the floor boards may well be equivalent to that caused in nature by a large mammal treading very close to the nest. I was, when watching, strongly reminded of the reaction of incubating Jays *Garrulus glandarius* to jarring of the nest supports (Goodwin 1956).

When returning to incubate after having left the nest in alarm the parent would nearly always bring some decoration and place it on the outside of the nest or, less often, inside the cock nest. Then it would go inside the cock nest, perform some building movements or at least toy with material. Often it would hop in and out of the cock nest several times, then remain quietly inside it, as if incubating there, for up to three or four minutes. Finally it would go to the ground and hop around and under the nest entrance, often working at shaping the entrance with its bill, before finally entering the real nest to incubate. There was a great contrast between the conspicuous "fussy" movements, with exaggerated lateral tail-flicks, with which all the preliminaries (except the false incubation in the cock nest) were carried out and the sudden stillness and lack of tail movement that immediately preceded entrance into the real nest. The above description is typical but the amount of time spent decorating and otherwise delaying varied a good deal, and in the later stages of incubation some or all of them might be omitted. Finding material for decorating, returning and placing it on the nest, working on the cock nest, entering and false-incubating in the cock nest and shaping the entrance tube of the real nest before entering it appeared to be all activities which, in this situation, indicate different stages of conflict between fear of entering the nest and the desire to incubate.

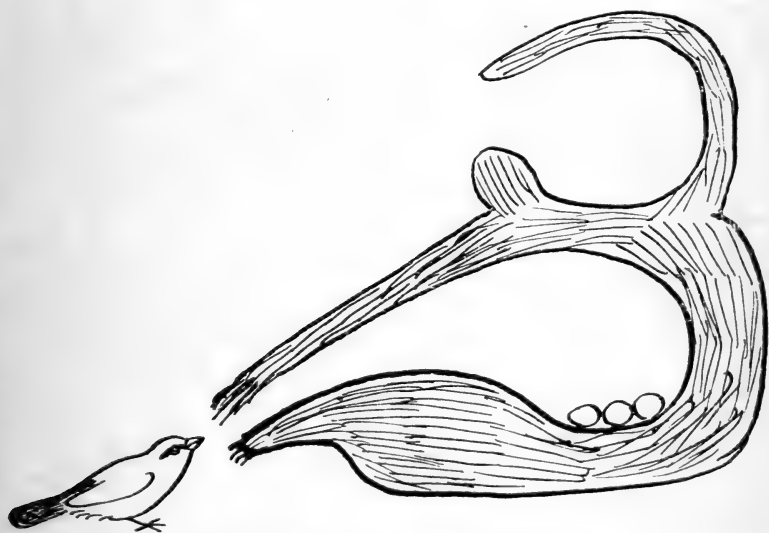
The cock *rhodopyga* would, by day, go into the nest out of turn and incubate if his mate came off and did not soon return to it just as male pigeons, *Columba* and *Streptopelia*, and blue waxbills, *Uraeginthus*, usually do in like circumstances. He did not, however, incubate at night if, as often happened, the female *trogodytes* refused to enter the nest at dusk and slept away from it. He never roosted in the cock nest or anywhere near it nor did he or the female spend any time in it by day unless actively building or indulging in the above-described preliminaries to resuming incubation after disturbance.

At times there were numbers of small black ants, probably *Lasius niger*, in the room. These the male *rhodopyga* killed, or at any rate disabled by crushing, and flung away if he saw them close to the nest entrance. Once I saw him spend about five minutes squatting just outside the entrance tube and killing every ant that came within about two inches of him. He ignored ants further from the nest and, like the other waxbills, did not

eat worker ants. It is likely that even ants small and innocuous enough to be dealt with in this manner by an adult waxbill might still be a danger to its newly hatched young should they enter the nest in any numbers.

Possible function of the cock nest

It is often stated that the cock nest is used by the male of *Estrilda* species for roosting but without any definite proof or personal observation being offered. In writing of *E. troglodytes* Shuel (1938) claimed that the cock nest was used as a resting place by the bird not actually incubating but would appear to have based this on the fact that he observed "On one occasion . . . one bird was in the nest and the other in the extension." Of *E. astrild* Belcher (1930) says that the entrance of the real nest cannot be seen from above, and adds "What one always does see and might readily mistake for the true nest is a 'second chamber' . . . it may be for the cock to sleep in or possibly to deceive marauders". He goes on to say that the parasitic *Vidua* appears usually to find its way into the real nest



Section of a nest built by the *Estrilda* pair

to lay but that an African, after accurately describing the nest of *astrild* to him, told him that "the bird that lays in the top nest is a black and white one with a long tail". He concludes therefrom that "It may be that *Vidua* does sometimes lay in the upper chamber". This not only suggests, as Belcher comments, that the female *Vidua* may sometimes be fooled but also that the male *Vidua* may play some part in finding the nest to be parasitised, as appears to be the case, at least in captivity, with the closely related and also parasitic *Hypochera* (Nicolai, pers. comm.)

Holman (in Bannerman 1949) describing the nest of *E. melpoda* suggested that the projecting grass stems at the entrance might serve to repel snakes.

Even if the nest parasite is not, at its present stage of evolution, misled

by the cock nest, the most likely function of the latter is, in my opinion, to mislead marauders. What marauders only field studies can discover. For a tiny bird nesting on the ground, rodents, small mustelids and snakes might be important nest predators but, since they hunt largely by scent, would seem unlikely to be fooled. It is, however, possible that the difficulties of entering the tube plus the presence of a very obvious nest immediately above or to one side of the living (and probably scent-producing) contents of the real nest may lead to the real nest being overlooked once the cock nest has been investigated without reward. Even if the cock nest only served to delay the entry of such a predator it would probably allow the parent, alerted by activities overhead, to escape instead of being trapped together with its eggs or young by the predator entering the real nest immediately on arrival. At least in the case of the nests built by my captive pair, the thickness and consistency of the walls of the real nest are such that I think it would be impossible for a smallish snake, and time-consuming for a small mammal, to break through them directly into the nest cavity.

Nest robbing birds would almost certainly be fooled at least initially; but I should have thought that they would be far more likely to miss the real nest altogether if it did *not* have a relatively conspicuous cock nest on top of it. It seems more likely that the cock nest and other related features, such as the tubular entrance, either have reference to non-avian predators or that, in spite of *Vidua's* alleged present success, may have originally evolved as some protection against nest parasitism.

It is just possible that a minor function of the cock nest may be to divert the harmful activities of other small birds seeking nesting material. In my bird rooms, nests of *Uraeginthus*, *Amandava* and *Lagonosticta*, if built among the branches where other birds can reach them, are often partially destroyed (sometimes to such an extent that eggs or young fall to the ground) by other waxbills pulling nest material from them. Such damage has been done to the cock nests of my *Estrilda* but the real nest below has escaped injury and the damaged cock nest is quickly repaired if materials are available. None of the other genera mentioned above attempt to repair damaged nests once incubation has begun, although they continue to add nest lining material until the young fledge.

The building of cock nests is apparently confined to the typical waxbills, and within the genus *Estrilda* is shown principally, though not only, by those species which normally or frequently nest on the ground. Cock nests seem therefore likely to be an adaptation that arose in correlation with ground nesting, either in reference to some hazard to which ground nesting waxbills are especially prone or because only a ground nest blending with the substrate would be likely to escape discovery by reason of a cock nest on top of it.

Conclusion

The suggestions put forward in this paper are admittedly hypothetical. They are, of necessity, based on the writings of others and of the behaviour of a single captive pair of *Estrilda*, whose actions have, however, been observed in some detail. It is hoped that they will stimulate further observation by others, particularly anyone who may be able to study any relevant species in the wild.

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The Chestnut-banded Sand-Plover in Israel

by HAIM HOVEL

The range of the Chestnut-banded Sand-Plover, *Charadrius venustus* Fischer and Reichenow (= *pallidus* Strickland) lies in north-eastern and southern Africa. The species is resident throughout its range; therefore records outside the regular distribution area are rare and of interest.

This note relates to an example shot on the sea-shore at the mouth of the Kishon River in the Mediterranean, near Haifa, on 18th July, 1958. The specimen, a female, was in a small group of Great Sand-Plovers, *Charadrius leschenaultii* Lesson and Kentish Plovers *Charadrius alexandrinus alexandrinus* Linnaeus. In H. Hovel's collection; collector's No. 935.

Description: Above, medium smoke-grey with a tawny wash and whitish tips to feathers, especially on the head. Whitish tips to the wing-coverts; inner edge of primaries washed white. Forehead white with some chestnut on the upper part and a chestnut line from base of bill to eye.

Under parts white with a tawny band across the breast; sides of neck tawny and white. Eye brown. Bill black. Legs and feet greenish-grey.

Measurements: Wing 103; tarsus 28; bill from feathers 15.5 mm. Ovary with eggs about 1-1.5 mm. in diameter. Weight 42 grams. Because of lack of comparative material no attempt was made to determine the subspecies.

The Northern Carmine Bee-eater, *Merops nubicus* Gmelin using animal perches

by IAN GRIMWOOD

Received 9th March, 1964

There have been several published records of the Carmine Bee-eater, *Merops nubicus* perching on large birds such as the Kori Bustard, *Ardeotis kori* (Burchell) and Abdim's Stork, *Sphenorhynchus abdimii* (Lichtenstein). According to Praed and Grant (1952) "These animate perches are not merely resting places, but are definitely used as 'beaters' for putting up

grasshoppers and other cryptically coloured insects from long grass". In the course of a visit to the north end of Lake Rudolf (Kenya) in February 1964 I saw Carmine Bee-eaters using Kori Bustard, Burchell's Zebra, Topi and Grant's Gazelle as perches. I am convinced that this behaviour was not for lack of other perches—there were plenty of bushes and trees about—but because they are developing Cattle Egret, *Bubulcus ibis* (Linnaeus) habits *i.e.* they were constantly swooping down to catch insects disturbed by their 'hosts' and then returning to their perch. It was noticeable how they refrained from perching on Oryx, presumably because they could be swept off by the long horns. The Marsabit Game Warden told me that he has also seen the Carmine Bee-eater perching on the long-necked Gerenuk, sometimes called the Giraffe-Gazelle. One party of seven Topi I saw all had Carmine Bee-eaters on their backs, as many as a total of nine at a time.

On the other hand I have never observed similar habits, nor I believe has anyone else, in the Southern Carmine Bee-eater, *Merops nubicoides* Des Murs and Pucheran, a bird with which I was familiar for many years in Northern Rhodesia where it nested in colonies of many hundreds in the Loangwa Valley and seasonally occurs throughout most of the country.

According to Praed and Grant (1962) "Has the habit of following man or game for the insects they disturb and comes freely to grass fires", but Roberts (1958) does not refer to any association with man or game, though he does mention, in connection with the search for insect prey, "flying about at some height often near bush fires".

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A new subspecies of Pink-billed Lark, *Calandrella conirostris* from Barotseland, Northern Rhodesia

by C. W. BENSON

Received 24th February, 1964

During a collecting tour in Barotseland, from 19th November to 5th December, 1963, on behalf of the Rhodes-Livingstone Museum, I spent a day on the Matabele Plain, in the Senanga District, where five specimens of *Calandrella conirostris* (Sundevall) clearly representing a previously undescribed subspecies were collected:—

Calandrella conirostris harti, subsp. nov.

Description: Altogether paler than *C. c. makawai* Traylor (1962), the feathers of the upper side margined with grey rather than pinkish buff, the fawn of the under side less rich. Somewhat richer fawn below than *C. c. crypta* Irwin, and decidedly darker above, the centres of the feathers blacker; their margins greyer. In fawn coloration of under side closest to *C. c. barlowi* (Roberts), but slightly more pinkish in tone than in that subspecies, and at once distinguishable on upper side in being grey rather than rufous, the dark central stripes of the feathers as in *barlowi* being reduced.

Distribution: Apparently confined to Matabele Plain, Barotseland.

Type: Male, in the Rhodes-Livingstone Museum, shot by Jali Makawa

for C. W. Benson, on the Matabele Plain, Barotseland, Northern Rhodesia, at 16° 26' S., 23° 10' E., 1st December, 1963. Collector's number NR 12956, R.-L. Mus. Reg. No. 5001.

Measurements of type: Wing 75, tail 41, culmen (from base) 10, tarsus 20 mm.

Material examined: On this same tour I spent 22nd November on the Liuwa Plain with R. K. Hart, where he shot for me a specimen of *makawai*. On returning to Livingstone and unpacking the collection, differences between this specimen and those from the Matabele Plain were at once apparent, to my surprise. One of the latter was sent to Major M. A. Traylor for comparison with the type and topotypes of *makawai* from the Liuwa Plain in the Chicago Natural History Museum. He confirmed the well marked differences between the two subspecies.

The Matabele Plain material has been compared with that of the species in the National Museum, Bulawayo. Of seventeen specimens of *crypta*, from Lake Dow and the Makarikari Salt Pan, eastern Bechuanaland, several collected in January are in fresh dress, but like the remainder are easily distinguishable from the Matabele specimens, also in fresh dress. Nine specimens of *barlowi*, from southern Bechuanaland, and one each of *transiens* and nominotypical *conirostris*, were also available.

Remarks: That different subspecies should have evolved on the Liuwa and Matabele Plains can be explained from an inspection of the map in Trapnell *et al.* (1948). This shows that both these plains consist of Kalahari sand plain grasslands isolated from each other by nearly 100 miles, such grasslands being absent in the intervening area. Traylor (1962) suggests that the dark colour of *makawai* may be a response to increased humidity. This seems to be borne out by *harti*; darker than *crypta* but paler than *makawai*, and the annual rainfall mean on the Matabele Plain may be appreciably less than on the Liuwa Plain, an inspection of the rainfall map in Brelsford (1960) showing that the former lies between the 24 and 28 inch, the latter the 36 and 40 isohyets.

Harti was common in twos and threes on the drier parts of the plain. Not a single *Calandrella cinerea* was noticed, and this species appears to be largely a migrant, only normally present in Northern Rhodesia during the dry season. But the presence of *conirostris* on the Matabele Plain on 1st December, after the start of the rains, suggests that it is resident, and helps to explain the subspeciation which has occurred.

To the list of subspecies of *Calandrella conirostris* in White (1961) (see also Ostrich, 33 (1), 1962: 13, agreeing) there must now be added the two from Barotseland, *makawai* and *harti*. The latter is named after R. C. Hart, son of R. K. Hart. He has collected many specimens which are now in the Rhodes-Livingstone Museum in the Kalabo District of Barotseland. I am grateful to M. P. Stuart Irwin for making available the material of *Calandrella conirostris* in the National Museum, Bulawayo. He agrees with me in recognising this new subspecies. I must also thank C. S. Holliday for sending skinner Aaron Muchindu for my tour.

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Some further records from Barotseland

by C. W. BENSON

On the tour referred to in the immediately preceding paper, an immature female of *Falco tinnunculus rupicolus* Daudin and a female of *Merops (Melittophagus) variegatus bangweoloensis* (Grant) were also obtained on the Matabele Plain. The latter was only noticed in reeds fringing a pan of permanent water on the plain. It was also collected, and recorded as common, in a permanently moist, spongy dambo seven miles north-east of Mongu.

In Acacia woodland immediately to the south of the Matabele Plain, *Tockus flavirostris leucomelas* (Lichtenstein) and two specimens of *Lybius (Tricholaema) leucomelas centralis* (Roberts) were collected. But in *Brachystegia* woodland 10 miles north of Senanga only *L. l. frontatus* (Cabanis) was seen and collected. The ranges of the two forms thus approach one another to within little over 30 miles, and they hybridise at Livingstone (Benson & White, 1960: 197.) Three specimens of *Tockus p. pallidirostris* (Finsch & Hartlaub) were also collected in *Brachystegia* 10 miles north of Senanga.

Other interesting specimens collected, by R. C. Hart at Kalabo District Headquarters, are *Mesopicos grisecoephalus ruwenzori* Sharpe (in riparian forest by the Luanginga River), *Cisticola brunnescens cinnamomea* Reichenow, and *Ortygospiza l. locustella* (Neave). The latter two have also recently been collected by C. J. Vernon at Lusaka.

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A case of spontaneous rupture of the left auricle in a Great Crested Grebe and two other species of birds

by JAMES M. HARRISON

Received 21st January, 1964

On 19th April, 1963 an adult Great Crested Grebe (*Podiceps cristatus cristatus* Linnaeus) was found dead on a ballast water in Sevenoaks. It was in excellent general condition, was in breeding plumage and showed no evidence of disease nor injury.

On dissection the bird was found to be in good condition and to show no evidence of wasting. The ovary and oviduct were quiescent and the appearances did not suggest that the bird would have bred this year.

The most striking post-mortem finding was that both jugular venous systems were grossly engorged and that the heart lay bathed in a pool of dark blood and blood clot. It was found that there was a large rupture of the left auricle, which was, of course, the immediate cause of death.

Since it has been established that this species has more than once succumbed to the effects of toxic chemicals, the cadaver was sent to the Crop Pests Laboratory, Cambridge, for investigation as to the presence of residues.

The analyses were carried out by Mr. Colin Walter to whom I am indebted for figures relating to these and relevant comments.

The most significant finding was that of a dieldrin residue which it was estimated was in the region of 3.5 p.p.m. This estimation took into account the fact that not all the residue was recovered by the technique used, and that the figures quoted are minimal. It is stated that the maximum dietary level for Quail chicks permitting survival is 1 p.p.m. (De Witt). In so far as the analytical findings are concerned, Mr. Walker comments that the figure is to be regarded with some suspicion particularly as it was obtained from the analysis of breast muscle which "is not a tissue where one usually gets a marked accumulation of these residues (c/f. with liver and fat)". The percentages in other tissues from the specimen are being analysed later. Mr. Walker says (*in litt.* 13. xii. 63) "we have now done a paper chromatographic analysis of the liver—with the following result:—

Dieldrin 1.3 p.p.m.

pp¹—DDE 1.9 p.p.m.

ppt¹—DDT a trace

The clean up of liver extracts is rather difficult, and this causes low recoveries of pesticide. The above figures are consequently minimal. We did not find sufficient fat for analysis".

In so far as the pathology is concerned he adds "Your observation on the rupture of the left auricle is interesting, since dieldrin has a very marked effect on the nervous system in birds and mammals, causing muscular convulsions, vomiting, etc. Unfortunately it is not possible to state what residue level in a grebe would indicate that these had appeared as a consequence of the action of dieldrin. We have analysed three other Great Crested Grebes, and all have had residues similar in quantity and kind to your specimen in the breast muscle". The other residue D.D.E., a metabolite of D.D.T., was not regarded as of significance.

Discussion: From the foregoing it is evident that toxic chemicals may have a bearing on the unusual cardio-vascular episode described above, particularly in so far as the toxic manifestations in life are such as would favour venous engorgement and an increase in vascular pressures.

The writer has come across three other instances of this pathology over the years. One was in a male Chaffinch, *Fringilla coelebs* Linnaeus, the second occurred in a Fischer's Love Bird, *Agapornis fischeri* Reichenow, which was seen to drop dead from its perch, while the third was a duck Mandarin *Aix galericulata* (Linnaeus) which was seen by Dr. Jeffery Harrison to die in a convulsive seizure on the water. In all three cases the left auricle had given way. Unfortunately investigations with regard to toxic chemicals were not carried out.

This type of fatal cardiac seizure does not seem to have been recorded previously, and although the connection of this with poisoning by toxic chemicals has not been clearly established by chemical analysis, the observation of a fatal convulsive attack in a Mandarin Duck is clinically most suggestive, particularly in view of the fact that dieldrin is recognised as having a very marked effect on the nervous system in birds and mammals causing muscular convulsions, vomiting, etc. (*vide* Colin Walker, *in litt.* 16. vii. 63).

My thanks are due to Dr. Jeffery Harrison for his co-operation, to Dr.

Norman Moore and Mr. Colin Walker of Nature Conservancy for the investigation of the Great Crested Grebe with regard to the presence of toxic chemical residues.

Reference:

De Witt, James B., 1956. Oct. *Journ. of Agric. and Food Chemistry*. IV., No. 10., 863-866; 672-676.

On the original description of *Passer iagoensis motitensis* Smith

by P. A. CLANCEY

Received 23rd March, 1964

It is generally agreed among systematists that Dr. Andrew Smith first described the southern race of the Great Sparrow *Passer iagoensis motitensis* Smith in his *Illustr. Zool. South Africa*, Aves, 1848, pl. cxiv, and this reference was used by Macdonald, *Contr. Ornith. West. South Africa*, 1957, pp. 156, 157, when he argued in favour of restricting the type-locality to near Hopetown, in the Cape Province to the south of the Orange River at 29° 37' S., 24° 05' E. Moreau, in Peters' *Check-List Birds of the World*, vol. xv, 1962, pp. 15, 16, uses the same 1848 reference and adopts Macdonald's restriction of the type-locality, as do Mackworth-Praed and Grant, *Birds Southern Third of Africa*, vol. ii, p. 55 (not type-locality restriction), and Clancey, *Durban Mus. Novit.*, vol. vii, 5, 1964, p. 138.

Smith's description of the Great Sparrow in his *Illustrations*, 1848, was not, however, the first naming of this species, which was actually originally described as *Pyrgita Motitensis* Smith, in his *Report Exped. Explor. Cent. Africa*, 1836, p. 50. The actual diagnosis as given leaves no doubt as to the accuracy of this assertion: "*Pyrgita Motitensis*. Top of head and back of neck grey; eyebrows, sides of neck, and back, chestnut; the interscapulars dashed with dark black-brown; eyeband, chin, and throat, black; cheeks white; breast and belly rusty white. Length 6½ inches. Inhabits the country about Old Latakoo [*i.e.*, near Kuruman, northern Cape Province (P.A.C.)]."

It is difficult to account for the overlooking by workers of this prior description of *P. i. motitensis*, which is earlier than the generally accepted one by some twelve years, because it appears immediately above the description of *Pyrgita diffusa* Smith (= *Passer diffusus* of modern usage), a name in universal use. In his 1848 description Smith stated that he took two specimens of the Great Sparrow sixty miles to the south of the Orange River, but I submit that he was in all probability writing from memory and that some error has occurred, the two birds concerned obviously being the same as those used as the basis for the 1836 description. No later investigator has found the Great Sparrow to the south of the Orange River, and the type-locality deriving from Smith (1848) has long been suspect. The adoption of the earlier description of 1836 with the type-locality of the taxon at Kuruman, within the known range of the species, is eminently more satisfactory from the point of view of distribution.

On the status of *Puffinus assimilis baroli* in the Azores archipelago

by DAVID BANNERMAN

Received 17th May, 1964

In the *Ibis* 1914, in a paper entitled the Distribution and Nidification of the Tubinares in the North Atlantic Islands, under a sub-heading *Breeding range in the Azores*, I dealt with the status, as then understood, of the Madeiran Little Shearwater, or as it was then termed the Atlantic Allied Shearwater, *Puffinus assimilis baroli* Bonaparte, in the Archipelago. F. Du Cane Godman was the first Englishman to mention it from the islands in his *Natural History of the Azores* 1870 p. 39 where, under the name *Puffinus obscurus* (Gmelin), against which he places a question mark, he wrote: "People living in the island of Flores told me that there was a smaller bird than the last species (i.e. *P. anglorum* = *Puffinus puffinus puffinus*) but similar in form, colour and habits. Hence I conclude it is *P. obscurus*. It is said to arrive about the month of March and to breed in the cliffs. It had reared its young and gone before I was there, and I did not obtain, or even see, a specimen; neither did I hear of it in the other islands . . ." Bocage had already mentioned the species from the Azores (*Jorn. Acad. Sci. Lisboa* 1866) and so had Simroth (*Archiv für. Naturg.* 1888) but there is no mention of nesting in either account. Ogilvie-Grant in 1903 obtained an adult from Praia islet, off Graciosa, secured by fishermen and recorded a specimen from the island of Pico which he had examined in the museum at Ponta Delgada, together with two other specimens—all adult birds. Up to that time no definite *proof* of breeding in the Azores, although suspected, was forthcoming. In two expeditions on behalf of the American Museum of Natural History, Sr. José Correia failed to find the Little Shearwater either in 1921/22 or in 1927/28 although collecting actively in April, May, June and July during the breeding season. Nor were the two local collectors employed by the Frenchmen M. M. Mayaud and the late J. de Chavigny any more successful. In the report of the collections (*Alauda* 1932) there is no mention of the Little Shearwater in the main text but in an *addendum* to the paper (p. 429) the authors observe "Nidification probable," citing Godman and Ogilvie-Grant as their authorities for that assumption.

That was still the state of affairs in 1963 when volume 1 of my *Birds of the Atlantic Islands* was published. At that date there was no published proof of breeding, and in view of one or two statements which Godman had made with reference to some other species "breeding" in the Canaries, Madeira and Azores, I was not inclined to put too much value on his statement in *Ibis* 1866 p.104 concerning the probable nesting of *P. a. baroli* in the cliffs of Flores, a statement repeated word for word in his book (1870). The finding by fishermen of an adult male on Praia islet, now preserved in the British Museum, was the only indirect evidence of nesting in the Archipelago. I therefore wrote in my book (1963 p. 10) that there is as yet no indication that it *P. a. baroli* breeds in the Azores. It would have been more accurate to have written "There is as yet no *proof* that it breeds". That first volume dealt with the breeding of the Madeiran Little Shearwater in the Canaries and the Salvage Islands only. My

reference to its nesting in the Azores and the Madeira group was given when discussing the general distribution of the race.

Since working on my second volume which deals specifically with the birds of Madeira and the Azores I have visited all the islands personally and have tried to check all former references to the petrels and shearwaters. The curators of the museums in Funchal (Mr. G. E. Maul) and in Ponta Delgada (Sr. José Maria Alvares Cabral) have most courteously provided me with lists of all the specimens in their respective museums and, as regards the Azores, Sr. Cabral has listed six examples of *Puffinus assimilis baroli*, all adults except one which was marked as an immature "juv". Juvenile petrels do not necessarily imply birds which have been bred locally, and though highly suggestive, I did not consider it a cast iron breeding record. I have however now received a letter from Sr. Cabral telling me of a visit to the museum at Ponta Delgada of a lady ornithologist, Dr. Sigrid Knecht, already known for her researches on the birds of the Canaries and Azores, who requested to examine all the specimens of *P. a. baroli* in the museum collection. In granting this request he had a search made in the cabinets and was astonished to find among them a *nestling* of *Puffinus assimilis baroli*. He immediately wrote to me as follows:

"Je vous ai induit en erreur en vous envoyant la liste des oiseaux des Açores du Musée de Ponta Delgada. Voici les corrections que je crois devois être apportées: Le No. 1500 . . . est un mâle, qui a été capturé au nid avec un poussin (nestling) et qui porte le No. 1501. Le préparateur du Musée se rappelle de les avoir tués le même jour, le 15 Avril 1951 . . . De cette façon, il reste établi que ce Puffin niche, au moins parfois, au Açores."

The error in describing this specimen "Juv" in place of "nestling" must not be attributed to Sr. Cabral it having been copied from the label by an assistant. When Sr. Cabral himself saw the specimen, he at once realized the importance of the discovery and communicated with me immediately. When in the Azores, in 1963, I visited the well-known naturalist Colonel Agostinho in the island of Terceira and asked him if he could confirm the breeding of *P. a. baroli* in the Archipelago. He assured me that it had never actually been found breeding and was extremely rare. He too was unaware of the "nestling" in the museum collection in Ponta Delgada. It is very satisfactory to at last confirm it as a breeding bird after all these years, but whether or not this was the species which Godman reported (at second hand) as breeding in the cliffs of Flores still remains to be confirmed.

It should be emphasized that the nestling in the Ponta Delgada Museum was added to the collection before Sr. Cabral took charge of the collection. It had not therefore come to his notice earlier.

Partial albinism in a Redpoll

by R. E. SCOTT

Received 3rd February, 1964

Sage (1963) during his study of albinism in British birds makes no specific mention of the Redpoll *Carduelis flammea* and it would seem worthwhile to place on record this example of almost symmetrical partial

albinism in the species affecting both plumage and soft parts. The bird was trapped at Dungeness, Kent, during the routine ringing activities of the bird observatory on 18th October, 1963.

DESCRIPTION

Right wing: 2nd primary all white; 3rd primary distal two-thirds of outer web white, distal one-third of inner web white. Covert to fourth primary all white.

Left wing: 2nd primary all white. Covert to fourth primary with white tip.

Soft parts: Legs and feet appeared normal, but both hind claws and inner claw on left foot white; all other claws slightly paler than normal.

In all other respects the bird's plumage was apparently normal and its weight and measurements fell within the expected range for the species. The bird was probably a first winter female of the race *C. f. cabaret*.

DISCUSSION

Sage (1963) found that the Fringillidae accounted for 6% of the records of albinism available to him and of these the Chaffinch *Fringilla coelebs*, Corn Bunting *Emberiza calandra*, Linnet *Carduelis cannabina* and Greenfinch *Chloris chloris* provided over half the records. It would appear that the incidence of albinism in *C. flammea* is rather low, although it is, of course, a far less numerous species. During the past four years this is the only individual of the species among the 47 handled at Dungeness that has shown this condition. It is clear however that the sample is too small to justify any importance being placed on the percentage of 2.1.

Reference:

Sage, B. L. 1963. The incidence of albinism and melanism in British birds. *British Birds*, 56: 409-416.

The identity of *Antiornis grahami* Riley

by SHANE A. PARKER

Received 13th January, 1964

Antiornis grahami was described as a new genus and species by J. H. Riley (1926) from nine specimens collected at 3,500-4,000 feet on Mt. Omei in central Szechwan, and now in the United States National Museum. Deignan (1961) considered the series to be juveniles of *Cettia fortipes davidiana*, so far as I know giving no explanation for this conclusion. There seems no doubt that the specimens belong to the genus *Cettia*, but I think they are identifiable as *C. flavolivaceus* and not *C. fortipes*.

In his definition of *Antiornis* Riley made comparisons with *Tesia*, *Oligura* and *Neornis* (= *Cettia*) *flavolivaceus*. He stated: "*Antiornis* shows a certain superficial resemblance to *Neornis* Blyth, but differs as follows: the primaries are broader, and the first primary proportionately longer, the tail proportionately shorter and the feathers narrower, the general plumage softer and more lax". Four specimens of *A. grahami*, kindly lent by Mr. George Watson of the United States National Museum, were compared with a long series of *Cettia flavolivaceus* in the British Museum (Natural History). The difference in tail/wing ratio alluded to by Riley was the only point validated by my comparison. The tail of *A. grahami* is proportionately shorter than in *C. flavolivaceus*, the tail/wing ratios being 75.6-86% for *A. grahami* (juvenile and adult) as opposed to 83.5-111% for various races of *C. flavolivaceus* (juvenile and adult).

The specimens of *Antiornis* are yellow beneath and olive above. Several *Cettia* species have juveniles so coloured, but only in *C. flavolivaceus* do adults resemble juveniles in the yellow ventral plumage. Juveniles of *C. fortipes* in the British Museum although slightly more brownish-yellow beneath than adults, nowhere near approach the yellow of the under parts of the *Antiornis* series, *contra* Deignan. If the *Antiornis* series contains adults, it belongs with *Cettia flavolivaceus* and it seems that two of the four specimens I examined are adults. Specimens numbers 306292 and 332578 showed uneven "hunger-traces" across the tail feathers, while in 297814 a "hunger-trace" formed a straight line across all the tail feathers. 297818 bore no discernible "hunger-traces", but was considered closest in plumage detail and texture to 297814. Thus in the first two specimens the marked rectrices had grown at different times in the course of a moult, but in the third all the affected feathers had grown simultaneously as in the first (juvenile) plumage. Also, in the first two specimens the parietal region of the skull showed the degree of inflexibility typical of full maturity. Damage sustained by the skulls of the other two precluded the drawing of any conclusions along these lines. It is concluded that 306292 and 332578 are adults, and that 297814, and probably 297818, is a juvenile. The last two have slightly softer plumage but the difference is hardly noticeable. Mr. George Watson, *in litt.*, states the type of *Antiornis grahami* (not seen) to be closest in colour and amount of feathering to 306292, an adult.

In summary, the series of *A. grahami* contains adults and is therefore referable to *Cettia flavolivaceus*. With reference to the proportionate difference in tail-length, *grahami* is probably a tenable race of *C. flavolivaceus* inhabiting parts of Szechwan; more Chinese material would elucidate the position. It seems clear that *Antiornis grahami* Riley can be relegated to the synonymy of *Cettia flavolivaceus* (Blyth) and not to that of *Cettia fortipes davidiana* (Verreaux) as suggested by Deignan.

References:

- Deignan, H. G. (1961) Type specimens of birds in the United States National Museum. *Smithsonian Inst. Bull.* 221.
Riley, J. H. (1926). A new genus and species of groundwarbler from the province of Szechwan, China. *Proc. Biol. Soc. Wash.* 39: 55-56.

On the occurrence and nomenclature of certain petrels in North America

by W. R. P. BOURNE

Received 7th March, 1964

In the first volume of the *Handbook of North American Birds* (edited by R. S. Palmer, New Haven and London, 1962) a number of modifications of the classification and nomenclature of North American petrels accepted in the fifth and last edition of the *Check-list of North American Birds* published by the American Ornithologists' Union in 1957 were made partly on my advice. The more important ones were carefully documented and usually appear to have escaped criticism, but some minor points which did not appear to deserve such full treatment in the limited space available have been questioned in a review in the *Auk* 80:89, so it may be useful to place on record the reasons for these decisions here, together with a few comments on other points which have arisen since the book went to press.

1. The classification of the races of *Oceanites oceanicus*.

In the original description of *Procellaria oceanica* Kuhl took the name from a life-sized drawing of a bird captured at 37°S. off the mouth of the River Plate on 22nd December 1768 during Cook's first expedition. This drawing is still preserved in the British Museum (Natural History) together with a detailed description of the bird by Daniel Solander (Lysaght 1959). According to the drawing it had a short wing of about 138 mm., which agrees well with the small population occurring at the nearest breeding colony in the Falkland Islands, and is considerably smaller than the mean for the larger population breeding further to the south-east at South Georgia, which was subsequently designated as the breeding place of the type. In the circumstances, since the dimensions of the type agree with those of one of the smallest northern populations, and since there has been some confusion over the priority of the other names applied to them (Sheard 1943), it seemed best to refer all of them, including intermediate birds from South Georgia, to the typical form of the species, and the largest birds from Antarctica to the second valid form to be described, *Oceanites oceanicus exasperatus* Mathews, represented by a type with a wing of 155 mm. purchased in Leadenhall Market, London, on 2nd March 1905, now in the American Museum of Natural History. In following this course I was not "juggling with names" as suggested by the *Auk* reviewer, but reverting to the usage adopted by the first person to distinguish geographical variation in the species, G. M. Mathews, in the last complete check-list of the order Procellariiformes in 1934. The juggling occurred on the other side of the Atlantic.

2. The identity of the white-bellied storm-petrel of the genus *Fregetta* reported to come from Florida, currently referred to *F. tropica*.

The only evidence for the identity of this bird appears to be the original report by Lawrence in which he identifies it as "*Thalassidroma fregetta* (Sol.) Khul, *Thalassidroma leucogaster* Gould" and provides a good description which makes it clear among other things that the bird had a white breast. The specimen was last heard of in Philadelphia (Hellmayr & Conover 1948), where it was doubtless compared with the types of both *Fregetta tropica* and *Fregetta (grallaria) leucogaster* in the newly-acquired Gould collection, with a decision in favour of the latter. Mr. James Bond informs me that the latter is still there, and his description (wing 155 mm., tail 63 mm., tarsus proportionately short, with black markings on the upper tail-coverts) suggests that it is in fact both an example of the Tristan population of *F. grallaria*, and the same as the bird described by Lawrence. In identifying the bird from St. Marks, Florida, as *Fregetta grallaria leucogaster* I was therefore reverting to the original name used by the author who first described the specimen after the fullest possible confirmation of its identity.

3. The status of certain southern petrels on the North American list.

Since the *Auk* reviewer finally raises this problem, surely the most important question concerning this storm-petrel is not its identity, but whether it belongs on the North American list at all. It is one of no less than three southern petrels reported for North America for the first time by G. N. Lawrence in a single series of notes in 1851 and 1853. Mr. Eugene Eisenmann informs me that two of these, *Adamastor cinereus* and *Daption*

capensis, are still preserved in the American Museum of Natural History, while the third, *Fregetta (grallaria) leucogaster*, seems likely to have been compared with the type, so there seems no reason to doubt their identity. But it is much less certain where they all came from, because Lawrence obtained them all at second hand, and omits to mention either who collected them, or when they were taken. Only one of them has reappeared in over a century, and even this was originally identified as a "Manks Shearwater", "*Puffinus anglorum*" (which seems much more likely), and only after the passage of time and relabelling of skins as *Daption capensis* (Norton 1922). It seems possible that, as with various other southern petrels reported in the northern hemisphere in the last century, including a number reported for North America by Audubon only a dozen years before, all these birds were brought home by sailors from the South Seas and supplied to local naturalists who failed to enquire adequately concerning their origin. It is not unknown for such things to happen on this side of the Atlantic too.

4. Vernacular nomenclature.

Here I am to some extent in sympathy with the *Auk* reviewer, since I agree with him that it is desirable to adhere to some general standard for vernacular as well as scientific nomenclature. But as I have explained elsewhere (Bourne 1961) I hold that in this matter it is preferable that we should all attempt to conform to agreed international standards, rather than that different nations should adhere strictly to different, variable check-lists in the way that the *Auk* reviewer suggests for North America. Most of these national lists tend to preserve through all their protean transformations at the dictation of fashion a few favoured vernacular names for extreme rarities, names found nowhere else on land or sea, least where the birds concerned are common. Frigate Petrel and Collared Petrel are examples on our national list, and Black-tailed Shearwater and Harcourt's Petrel examples on the American one, which also calls our Frigate Petrel (equally rare there) by another equally outlandish name, White-faced Petrel, and includes among other things a Black Petrel totally different from the Black Petrel of New Zealand. International and not national standards are required for such matters, especially ones which reach the great bulk of bird-watchers such as popular field-guides. It still appears to me that it might be useful if in the case of widespread groups authors could fix upon and adhere to internationally acceptable standards, such as the first and only comprehensive guide to all seabirds, W. B. Alexander's "Birds of the Ocean" (second edition, London, 1955).

The next International Ornithological Congress is to be held in this country and this subject might be a useful one for the agenda.

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- 4 SEP 1964

THE LONDON LANCET

in the published list of persons living in the United Kingdom in 1901.

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Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

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DINNERS AND MEETINGS FOR 1964

15th September, 20th October, 17th November, 15th December.

and Room

BULLETIN



OF THE

BRITISH ORNITHOLOGISTS' CLUB



Edited by
JOHN J. YEALLAND

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**BULLETIN**

OF THE

BRITISH ORNITHOLOGISTS' CLUB

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The six hundred and eighteenth meeting of the Club was held at the Rembrandt Hotel, London, on the 15th September, 1964.

Chairman: Captain C. R. S. Pitman

Members present 12; guests 7.

Mr. S. J. J. F. Davies spoke on five doves of the genus *Streptopelia* and their hybrids, showing how voice and display may indicate relationship.

**Instability of feather pigmentation in the
White Helmet Shrike *Prionops plumatus***

by WALTER J. LAWSON

Received 18th May, 1964

During a recent attempt at a reassessment of the geographical variation exhibited by the southern African populations of *Prionops plumatus* I was struck by the number of entirely white-headed birds in collections. Normally the head-top is grey with a black bar behind the ear-coverts and with the throat grey as well. There also appeared to be some variation in the degree of pigmentation of these parts, which did not appear to have any geographical constancy.

The entirely white-headed birds which seem to appear in all populations usually have the throat white and the black bar behind the ear-coverts absent or a shade of grey.

This inconstancy prompted me to wash with soap and water a specimen

with a grey head and throat and black bar behind the ear-coverts, and after drying and fluffing the specimen it was noticed that all pigmentation on the head and throat had been washed out leaving a white-headed bird with a white throat and side of head.

This instability of the grey and black pigments of the head is of interest as it casts doubt on the use of the head coloration as a character of sub-specific import. This solubility of pigmentation in plumage has been observed in a few species of birds, but a detailed investigation of the problem needs to be undertaken by chemists.

On birds new for New Guinea or with a larger range than previously known

by A. HOOGERWERF

(continued from page 96—May 1964)

17. *Excalfactoria chinensis* (Linn.)

King Quail

Because the range of this quail is much more extensive than indicated in Mayr's list, it seems important to publish my experiences with the species. Mayr remarks: "Eastern New Guinea, westward on the south coast as far as the Oriomo River, on the north coast to the Kumusi and upper Watut Rivers; not yet recorded from Astrolabe Bay and Humboldt Bay". But afterwards Bergman obtained seven specimens from the Vogelkop (Gyldenstolpe 6) and van den Assem (1) mentions the species for Ifar near Hollandia (Humboldt Bay) and the same author observed it in the grasslands around Enerotali (Wissel Lakes) at 1800 m. above sea level, where several specimens were secured earlier (Junge 9).

I found this quail in nearly all suitable areas visited by me in New Guinea, in the southern part as well as in the Vogelkop area. In Kurik's ricefields I saw it only on three occasions, viz. on 10th March, 1959, 21st March, 1962 (solitary birds) and on 1st September, 1962 when six together came up from the side of a ditch covered with grass and other low growing plants, surrounded by dry ricefields. The species is a resident in the extensive savannahs surrounding Kurik, along the Kumbe and Maro Rivers and in the Moppa plains east of Merauke, in the plains near the shore between the Kumbe and Bian Rivers and in the Gali Ephata area. Though observations were most plentiful during the dry season (June till November), those during the rainy season could not be called rare: February (4), March (3), April (4), May (1) and December (2). In those months the species was observed sometimes in very swampy localities.

On 25th August, 1960 a specimen was caught at Kurik and kept in an aviary.

In the northern part of New Guinea I saw the birds every day during my visit to the Kebar Valley (Vogelkop, about 500 m. above sea level) in October 1962; on 25th February, 1963 some specimens were seen along the Anggi Lakes (Vogelkop, about 1200 m. above sea level) and in March 1963 it was not uncommon in a dryalang savannah near Ransiki (Geelvink Bay, sea level). Usually the birds were seen alone or in pairs; the observation of six on 1st September, 1962 may be considered an exception.

18. *Porzana tabuensis* (Gmelin)

Spotless Crane

With the exception of New Britain and the Astrolabe Bay this small rail is not known from the lowlands of New Guinea and surrounding areas. After the appearance of Mayr's list a large number of specimens was collected near the Wissel Lakes (Junge 9) and the Western Highlands, Central New Guinea (Gyldenstolpe 5). On 2nd May, 1960, I found remains of two in the South polder, damaged apparently by rats. Those remains were unmistakably of this species because of the uniformly brownish wings, mud-grey under parts, red legs and small, blackish bill, a number of differences when compared with the much rarer *Porzana pusilla*, also known from New Guinea.

At that time most of the South polder was inundated and covered with a ripening rice crop. Though in these fields *Porphyrio porphyrio*, *Rallus philippensis* and *Poliolimnas cinereus* were regular visitors and the frequent breeding of both last mentioned species was observed, I never saw a *Porzana tabuensis* alive at Kurik or surroundings. But on 23rd May of that same year I saw a single specimen on a mudbank along an area covered with *Eleocharis dulcis* not far from the south coast of Frederik Hendrik Island.

19. *Poliolimnas cinereus* (Vieill.)

Grey-bellied Crane

The range of this rail as indicated in Mayr's list does not include the area between the Mimika and Fly Rivers. But the species was not only recorded by me within Kurik's ricefields and surroundings but also on Frederik Hendrik Island and in the extensive freshwater marshes near Kepi (Mappi Region) about 175 miles north-west of the Kumbe River. In Kurik's inundated ricefields its presence was known sometimes for long periods and it was seen nearly every day so that it may be accepted that during the rainy season a small resident population is there; also breeding was observed. On 31st January, 1960 I found a clutch of six eggs; at the beginning of February a clutch of five; in March a nest with five eggs; on 22nd March, 1961 a shell probably emptied by rats was found and on 11th May, 1962 an egg in a deserted nest. In December 1959 there was a clutch of three eggs in a freshwater marsh near Kepi where several birds were observed. In March and April 1961 and in May 1962 calling birds were located on several occasions.

Because no full clutches at all were found in the first half of 1962 there is a possibility that the population of this crane is not stable within Kurik's ricefields.

Though the receding water in the seasonal marshes must diminish the habitat for the species, it certainly remains in suitable surroundings in south New Guinea.

20. *Amaurornis olivaceus* (Wallace)

Bush Hen

In accordance with Mayr's list the species is only known from Daru and Oriomo River, so far as it concerns the south coast of New Guinea, but it was recorded repeatedly in our area. Only on very rare occasions I caught a glimpse of a bird but its call made it evident that the species is certainly not very rare in the region between the Maro and Bian Rivers. In November 1960 and March 1961 some were heard daily in the very dense

shrubbery about 30 yards behind my house at Kurik, but I did not see even a feather of the birds until a specimen was shot quite close by on 8th March, 1961.

Apparently this rail prefers dry country densely covered with large plants including shrubs, in this respect showing some similarity to *Rallina tricolor*, *Megacrex inepta* and the Javanese species *Rallina fasciata*. This preference was also noticed around Manokwari where the bird's call was heard regularly in this type of habitat. This was also the case at Oransbari (Geelvink Bay) where I heard the call daily in December 1962 and there I observed for quite a while three specimens on the edge of heavy forest covered with dense shrubs on grass-covered ground. The species may be considered rather common there, at any rate during my visit to that area. Not far from this locality (Ransiki in 1948) Bergman secured a specimen (Gyldenstolpe 6). (Junge 5) mentioned it also from the Wissel Lakes (1♀).

21. *Choriotis* (= *Eupodotis*) *australis* (Gray)

Bustard

The range Mayr mentions is "Australia and South New Guinea (Wuroi and Tarara)". However, from my experience it is evident that the species spreads much further to the west, for in Kurik's ricefields and surroundings the "Plain Turkey" is of not very rare appearance during certain periods. One may wonder that the discovery in New Guinea of this large and conspicuous bird took such a long time, for it is hardly 20 years ago that the first bustard became known from this part of the world. Most observations (6) date from June, viz. two specimens in 1959 and four in 1960; in July 1960 (4), in August 1959, 1960 and 1962 (3); in April 1959 and 1961 (2); in May 1962 (2); in October 1960 (2) and only one in September 1962, November and December 1960. A female shot in the North polder on 25th April, 1959, had the ovary very small. On 22nd June, 1960 I found an egg on harvested dry ricefields of the North polder without a trace of a nest and I did not find a single bustard in that polder between 14th June and 1st July.

Usually the birds were alone or in pairs (there is a distinct size difference between the sexes), but on 28th July, 1960 six or seven were observed in dry savannahs north of the North polder and again thrice and twice a solitary bird at the same locality on 20th November in a period when fire had changed the place into a burnt prairie. On 11th October, 1960 I observed three in similar surroundings along the Kumbe River, some tens of miles inland. Often the birds were met with in the ricefields but almost without exception on harvested dry fields. I did not record observations during January to March, generally the months of most rainfall.

22. *Eupoda asiatica* (Pallas)

Eastern Dotterel

This plover is less rare perhaps than one is inclined to suppose on account of the few times we really saw it. On 7th November, 1960 several were present on dry ricefields of the North polder of which two were collected; in the afternoon there were 10-15 in exactly the same spot. On 13th November some were observed in the Gali Ephata marsh, containing hardly any water at that time and on 15th December, 1960 there were three on dry ricefields of the South polder together with some *Pluvialis dominica*.

In November 1959 some were observed along the shore and I am sure I have more records from the beach between the Kumbe and Bian Rivers but I failed to discover them in the tremendous heap of notes I made.

Mayr mentions only "two reliable records from the Papuan Region: Aru Islands and Astrolabe Bay", both far from our area.

23. *Mesoscolopax* (= *Numenius*) *minutus* (Gould) Little Whimbrel

Mayr's list mentions exactly the same localities as the range of this as for the preceding species but in October 1957 and in February 1958, 24 and four specimens respectively were observed close to Port Moresby by Mr. K. R. Slater (16). I observed it in all three years I spent in south New Guinea, sometimes in large flocks. Because its known range did not include our area and in view of the fact that so little is known of the species in its winter quarters, I think it worthwhile to publish my experience.

I did not observe the birds until 16th October, 1959 after a stay in south New Guinea of about nine months and the species is not mentioned in my notes of February till September 1962, so it is perhaps not such a regular visitor to that part of New Guinea as many other Scolopacidae.

In my experience the birds prefer dry country (harvested rice-fields and burnt savannahs) in this respect agreeing with *Glareola isabella*, *Eupoda asiatica* and *Pluvialis dominica*. But contrary to both last mentioned winter visitors I never saw *Mesoscolopax* along the beach, a habitat quite common to the larger *Numenius phaeopus* and *N. madagascariensis*.

The species was seen in both polders of the Rice Estate, within the extensive surrounding savannahs and 20–30 miles inland. My observations in south New Guinea are from October 1959, October till December 1960, April, May and June 1961. At Sorong (west New Guinea) I saw a specimen on 30th September and 6th October, 1962 and in the Kebar Valley (Vogelkop) also in October 1962. The birds were seldom seen alone and even observations of less than ten individuals were not common in my experience; 20–30 were seen on 27th October and 10th November, 1960, on 14th, 15th and 16th April and on 27th May, 1961. On 20th November, 1960 I saw a flock of about 70, on 19th April, 1961 about 100 and a day later 150–200. On 21st and 22nd April there were again many but I did not count them.

On both occasions near Sorong the bird was alone, looking for food on mangrove mud and on a dry field not far from the coast; in the Kebar Valley there were several together with *Pluvialis dominica* on the airstrip in an extensive plain covered with a grass-like vegetation.

Specimens in south New Guinea were secured on 12th October and 10th November, 1960. Latest records are from 27th May, about 15 specimens and 11th June, both in the North polder.

24. *Limosa limosa* (Linn.) Black-tailed Godwit

According to Mayr this godwit is recorded only once from New Guinea (Astrolabe Bay, north-east New Guinea). As is evident from the particulars published under No. 33 and 34 *Limosa limosa* together with *Calidris tenuirostris*, *Erolia acuminata* and *Charadrius leschenaultii* is among the most conspicuous of the winter visitors along those beaches of

south New Guinea that we know best. On several occasions flocks of several thousands have been seen. Though I observed the species regularly from September till May along the shore between the Maro and Bian Rivers, the largest concentrations were seen during October/November and April/May. In April 1961, as in 1962, extremely large flocks were observed often comprising several thousands. On 5th April, 1962 I secured 12 specimens together with seven *Calidris tenuirostris* and three *C. canutus* with one double shot!

It was common to see the species still in May; in 1959 there were rather a lot on 29th and 31st May and even on 17th June I estimated their numbers at several hundreds.

In April and May an increasing percentage was recorded showing partly the summer dress but at the same period such birds were mixed with large numbers still in complete winter plumage. I have never seen a single godwit except on the beach in south New Guinea.

25. *Limosa lapponica* (Linn.)

Bar-tailed Godwit

Mayr's remark "Recorded from the Aru Islands, Rossel Island and from *all parts* of New Guinea" gives reason to suppose that this species should be common along the beaches of south New Guinea, the territory beloved of nearly all migrating Scolopacidae.

In my experience this is certainly not so between the Maro and Bian Rivers where my observations of it are rather rare and I failed to obtain a single specimen.

On 29th May, 1960 there were some along the muddy shore of Frederik Hendrik Island where they were looking for food together with some other migrants from the Northern Hemisphere. On 30th September several were seen on the beach between the Kumbe and Bian Rivers, solitary birds as well as some together but there were no flocks of any size. There were again some on 27th November, and on 18th February, 1962 some of these godwits were seen on the same beach amidst a small flock of *Numenius phaeopus*. On 12th March, 1961 a specimen was shot but it escaped to a place inaccessible to me.

Though the flying bird can be distinguished at a glance from *Limosa limosa* on account of differences in colour and pattern of the lower back and tail, and when on the ground by its slightly larger size and longer bill which is tipped up, it is possible that the species escaped notice in a couple of cases, but I certainly do not believe that this happened many times. I am therefore quite sure that this godwit did not occur in large flocks within the territory of my observations and must be considered a less common migrant in south New Guinea during the period I worked there.

As is the case with the preceding species I never saw it except on the beach.

26. *Tringa stagnatilis* Bechst.

Marsh Sandpiper

The Marsh Sandpiper was not as yet known from New Guinea when the first specimens came to my notice in April and May 1962 and because I failed to see the species on earlier occasions—though I am rather familiar with it in Indonesia—it is perhaps only an occasional visitor to south

New Guinea, though the bird was not rare during the period indicated above.

On 13th April I observed a solitary bird in an inundated ricefield of the North polder; the following day there were at the least five in the same spot of which one was secured. On 17th April there were again five and on 21st April about ten of which two were obtained. Even on 8th May, 1962 there were still eight of these birds but I failed to see one on later occasions. The species was exclusively seen by me in muddy ricefields in shallow water or on wet mud, never, however, along the beach.

27. *Tringa ochropus* Linn.

Green Sandpiper

Again a species which was not known from New Guinea until I saw the first on 11th January, 1963 in the neighbourhood of Manokwari (Vogelkop) where generally very few migrating Scolopacidae were seen. I observed very well for a considerable time a solitary bird in a small pool of fresh water made by digging sand for road-building purposes, quite close to the aerodrome Rendani, where at that time were seen also *Tringa glareola*, *Actitis hypoleucos* and *Pluvialis dominica*, and sometimes also a single *Gallinago* sp.

The call of this bird and the dark coloured inner wing, together with its clear white rump, were characters which were superfluous affirmations of its identification. When we returned to the place in the afternoon of that same day I did not locate the bird, nor did I see it later or elsewhere.

28. *Tringa nebularia* (Gunn.)

Greenshank

Mayr's list states: "Recorded from the Aru Islands and a few times from New Guinea (Merauke, Daru)". Because of this last statement one might conclude that the Greenshank is rare in New Guinea, though there are some later records, e.g. from the Wissel Lakes region (Junge 9) and from Pulau Adi, Vogelkop (Gyldenstolpe 6). I will try to make it clear that this is certainly not so in those parts of south New Guinea that I know.

Though usually the Greenshank may be looked upon as of not very common appearance, it was seen fairly regularly in the winter months of every year I spent there. The birds were observed along the beaches as well as in the wet ricefields and many miles inland along muddy riversides and other suitable habitats.

Moreover this wader is a migrant which we observed more often during the summer of the temperate zones than was the case with any other northern migrant I know from that part of the world.

On 6th May some were met with along the beach and a week later there were about ten scattered over an area of some miles along that coast between the Kumbe and Bian Rivers, of which two were shot, showing small gonads as was the case with birds obtained during March and September; they were all females! In the last days of May 1959 there were many along the shore of Frederik Hendrik Island, united with other migrating Scolopacidae. On 12th June, 1959 there were four on a fallow ricefield not far from the mouth of the Maro River and on 17th June, 1962, 15 were counted in one flock and on that same trip more small groups and solitary birds were met with, spread over a distance of some miles of the

same coastline. On 6th July, 1959 there were some in Kurik's North polder and on 9th August, 1962 several along the beach; on 16th and 17th August, 1960 a few were present in that polder and also in the Gali Ephata area.

The Greenshank was never observed by me in large flocks, but usually singly or several together, sometimes with other Scolopacidae but more often not. Van den Assem 1) saw the species near Merauke in February till April 1958 and observed a group of ten on 17th April, 1958.

29. *Tringa glareola* Linn.

Wood Sandpiper

Mayr's list remarks: "Recorded from Waigeu and the Mimika River" so it seems also important to publish the results of my experience in south as well as in north New Guinea. This sandpiper was a regular visitor to both polders of Kurik and the surroundings of the Rice Estate. Though I usually saw the birds alone or several together I repeatedly observed larger concentrations of ten to 20 spread over some acres of suitable habitat, including muddy ricefields from where they used to disappear when the ground became too dry. Such concentrations were found on 22nd and 23rd March, on 3rd and 11th April, 1961, on 19th and 26th March and also on 4th April, 1962. Four specimens were secured in March 1961 and April 1962. I never saw the species later than on 4th May.

On 7th October, 1962 there was a specimen on a mudbank close to a tidal forest near Sorong and in 1948 Bergman collected one here (Gyldenstolpe 6). I also observed the species repeatedly near Manokwari, especially at the locality where *Tringa ochropus* (see No. 27) was recorded; on 30th November, 1962 there were two but on 11th January, 1963 five or six, as was the case on the following days and I obtained a specimen there on 17th January.

(to be continued.)

Observations on *Cisticola njombe* and *nigriloris*

by C. J. VERNON

Received 5th February, 1964

I spent the first twelve days of 1964 on the Nyika Plateau, accompanying C. W. Benson and C. S. Holliday on a Rhodes-Livingstone Museum collecting expedition. The escarpments of the plateau consist largely of *Brachystegia* woodlands, but above about 5,700 feet, to the highest points at about 8,500 feet, montane short grasslands predominate, with scattered relic patches of evergreen forest, bracken-briar and other rank growth, more especially below 7,000 feet. Most time was spent in the relatively small Northern Rhodesian sector, between 6,500–6,800 feet, where we were camped at the Government Rest House. Visits were also made to the grasslands up to 7,500 feet, and to the upper reaches of the *Brachystegia*.

The ecology and altitudinal range of the ten species of *Cisticola* recorded may be summarised as follows:—

ayresii: grasslands above 6,500 feet.

lais: bracken and grasslands, 5,700–7,000 feet.

njombe: bracken and grassland, above 6,300 feet.

- woosnami*: *Brachystegia* woodland.
nigriloris: rank growth above 5,700 feet.
cantans: rank growth, mainly in valleys, below 6,700 feet.
natalensis: grasslands below 6,300 feet.
brachyptera: grasslands with bushes below 6,000 feet.
fulvicapilla: *Brachystegia* woodland.
aberrans: *Brachystegia* woodland.

The two species which are the subject of this paper may now be considered in detail.

Cisticola njombe

Taxonomic: This species was originally attached by Lynes (1933, 1934) to *C. aberrans*, but Benson (1948) has shown that it is a distinct species, *C. n. mariae*, of the Nyika, being no more than slightly darker than *C. n. njombe*. Benson's view was accepted by White (1962) and by Mackworth-Praed and Grant (1963), who placed *C. n. njombe* in the systematic order immediately following *C. lais*, though White does not recognise the subspecies *C. n. mariae*.

Differences from *C. lais*. Wing-lengths (in mms) of specimens of *njombe* and *lais* collected are as follows:—

	<i>njombe</i>
4♂	54, 55, 56, 57
5♀	50, 51, 52, 52, 53
	<i>lais</i>
6♂	55, 55, 56, 57, 59
3♀	50, 51, 52

A sexual difference in size is well known in *lais*, and it is supported by these figures. It is not so clear-cut in *njombe*, the figures given by Lynes (1933) even indicating a slight overlap. This difference between the two species was supported by my field observations.

The specimens of *njombe* are more richly coloured on the upper side than those of *lais*, the crown and tail being redder, the blackish streaking of the mantle and back margined with rufous rather than grey, the streaking showing up less boldly. The difference is especially apparent on the crown. Moreover in *njombe* the crown lacks any streaking, and the red colour extends to the sides of the head. This difference on the crown was even more obvious in the field, and it was possible without hesitation to distinguish the two species by this character alone.

These were collected in the breeding season, in the rains, so are in summer dress. I have had the loan of four specimens of *njombe*, and five of *lais*, from the National Museum, Bulawayo, collected on the Nyika during May, August and September, in the dry season, and so presumably in winter dress. Winter specimens of *njombe* only differ from summer ones in having the blackish streakings of the mantle and back margined slightly more rufous. Winter specimens of *lais* differ from summer ones in having these marginations rufous rather than grey. But the most obvious difference is on the under side, which is strongly marked with buff in winter, merely greyish-white in summer and in all specimens of *njombe*. The distinctive features of the winter dress of *lais* are also shown in other

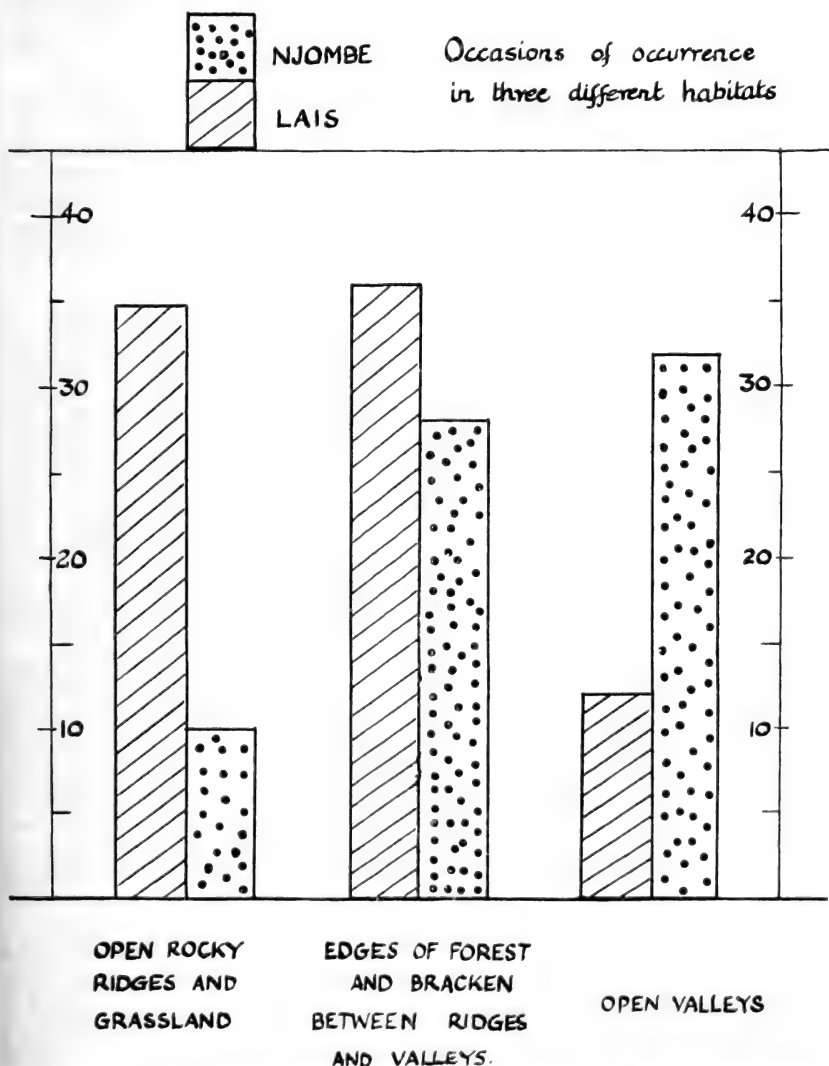
specimens loaned from the National Museum. Six from Mlanje and the Mafinga Mts., Nyasaland, collected in June, are quite distinct from six from eastern Southern Rhodesia and south-western Tanganyika, collected during mid-October to February. Incidentally, the four winter specimens of *njombe* have wing measurements 54, 56, 56 mm. in three males; 49 mm. in one female.

Four juveniles of *njombe*, and five of *lais*, were collected. Juveniles of *njombe* differ from adults in having the streaking of the mantle and back less bold, and margined with rufous without any greyish tone, while the crown, which is unstreaked, is not bright as in the adults, but practically concolorous with the rufous marginations of the mantle and back (in the field juveniles appeared much darker above than the adults). On the under side they are washed lemon yellow. Juveniles of *lais* are streaked on the crown, as in adults of this species, and are more boldly streaked on the mantle and back than are juveniles of *njombe*, from which they also differ on the under side in tending to have the wash more buffy, less lemon in tone. Juveniles of *njombe* had the palate yellow, with two black tongue spots somewhat blurred together, whereas adults of both sexes had the palate black.

Habitat: *Njombe* was found in the rank grass along open valleys and bordering forest and bracken patches. This can be divided into two categories, that of the undulating grasslands of the high Nyika above 7,000 feet, and that below 7,000 feet where montane forest is more extensive. On the high Nyika, *njombe* occurred in and along the edges of the many valleys, often dropping steeply to 200 feet below the short-grassed ridges. Fringing the valleys were thickets of bracken, tree fern and herbaceous plants, and in some places small patches of relic forest. *Njombe* was infrequent on the ridges, only ever in evidence where ranker plants such as bracken had encroached, as along the edges of roads. *Njombe* was the commonest *Cisticola* on the high Nyika, occurring between *nigriloris* in the rankest areas and *ayresii* on the ridges. *Lais* was not found above 7,000 feet, whereas in 12 valleys over a distance of 16 miles on the high Nyika, *njombe* was seen on 38 occasions (total of 85 individuals, including 17 juveniles).

On the low Nyika, *njombe* occurred mainly between 6,500 and 7,000 feet, at 6,300 feet it was infrequent, and was not seen at 6,000 feet. The vegetation is more complex than on the high Nyika, and is a mosaic of relic montane forest, regenerating secondary forest, bracken-briar and grassland. In the open valleys, resembling those on the high Nyika, *njombe* occurred in a similar density. This habitat is not unlike that of *C. tinniens* elsewhere in the Rhodesias. In the grasslands around the forest and bracken-briar patches both *njombe* and *lais* occurred, often close together, and on three occasions they were found within yards of each other. On the rocky ridges interspersed with bushes of *Protea* and *Philippia*, *lais* occurred in numbers while *njombe* was sparse. To generalise, *njombe* frequented the ranker areas and *lais* the more open and often rocky areas. Both species occurred in the intermediate areas around the forest and bracken-briar patches, but would only go into these when alarmed. Counts of *njombe* and *lais* in these three habitats on the low Nyika were made, and are shown in the histogram.

CISTICOLA NJOMBE AND LAIS HABITAT PREFERENCES



Habits: In this respect *njombe* bore no resemblance to *lais*. *Njombe* had a distinct song, frequently heard, and a display flight, whereas *lais* gave no clear song or display. The song of *njombe* was heard at any time of the day, even after sunset. A male living adjacent to our camp sang with great vigour and duration for about an hour between 5.30 and 6.30 a.m. on most mornings (the female was probably incubating eggs, as she

was only seen before 7 a.m., though no nest was found). The song, "tsk, chul-lit, chul-lit, chul-lit . . .", was fairly rapidly repeated with a pause of about ten seconds between each burst, and on one occasion 37 individual bursts were heard. Each burst was introduced with a quiet "tsk . . .", rather like one of the alarm notes of the Stonechat, *Saxicola torquata* and between two and ten, mainly five to seven individual "chul-lits", were sung. It was not given from one perch for long, and the male near our camp sang from a bush or grass.

The males made no physical display while singing, but the one at our camp did dance up and down on its perch when excited by the presence of the female. Males also sang in flight, and when chasing females the song became high pitched and excited, so that the "chul-lit" became slurred and indistinct. On two occasions singing males were watched making display flights (both had nests and eggs). This was a jerky flight, climbing at 60° for 15 feet to 20 feet, descending in the same manner, calling all the time. This display was quite like that of *tinniens*.

During the incubation period, the male did not warn the female of intruders. The female when flushed would slip away, flying up to 150 yards from the nest, and there make a pretence of feeding. Unfortunately no nests were found containing young, so the reaction then of the parents to intruders was not observed. When the young leave the nest the parents become noisy when alarmed. The alarm call of the male is either "pearp" rather as in *Prinia subflava*, or much less frequently "deer, deer" resembling the rapid introductory notes of the song of *C. chiniana*. The alarm note of the female is a high pitched, short "pee". In both cases neither could be mistaken for the "weep" alarm notes of *lais*. When the young first leave the nest they hide in the grass, but as they grow older they join the adults in the bushes when alarmed, and give the alarm note of the female.

Breeding: The seasonal stage reached was that many *njombe* were in family parties, with young at various stages out of the nest, or a smaller number were incubating eggs, probably of their second brood. In all 30 pairs were recorded with young out of the nest or eggs, 24 and six respectively. Of the family parties, eight were of 1Y, six of 2Y, nine of 3Y and one of 4Y, and of the eggs two clutches of c/2, three of c/3 and one of c/4.

The eggs were all pale green in ground colour and were marked with brown of varying intensity. The 17 eggs averaged 16.7 x 12.3 mm. and vary between 15.5–17.6 x 11.6–12.8 mm.

Nests of *njombe* were oval balls with a side entrance near the top, like those of *lais*. Dry grass blades were used, coarser than in *lais*. The outer frame was built first and small amounts of cobweb were used to hold it together and sometimes to bind it more securely to the site. Very fine dry rootlets and less often dry leaves were used in varying degrees, as in *tinniens*. The lining, thickest in the base, was of soft seed heads of grasses (*Imperata* sp.) and composites; it became compressed and felted as more was added. The nests were placed 4 to 12 in. up in either a grass tuft or a small herbaceous plant. Little attempt was made at concealment, and only a little of the grass or plant was built into the nest, but *lais* bowered the living grass over the nest as does *natalensis*.

Cisticola nigriloris

This species was widespread between 5,700 and 7,500 feet. Benson (1953) records birds down to 4,500 feet near Nchenachena on the eastern Nyika escarpment, but on the western escarpment no suitable habitat was seen below 5,700 feet. *Nigriloris* is a conspicuous and noisy species, and was common in patches of bracken-briar, on edges of secondary regenerating forest and in rank valleys. It overlapped in habitat with *cantans*, *lais* and *njombe*.

The birds went about in parties of up to nine birds. They would feed, hopping about in the bushes and undergrowth until one would fly on ahead, settle and start calling. The others would follow, and as they joined the first so the intensity of song would increase. Sometimes this might develop into a display, but would shortly die down and they would resume feeding. This was repeated irregularly during the day, and a party of seven followed for a morning did so every 15 to 30 minutes. The call was a loud double noted squeak, rising and descending the scale, 'flit-flou'. A secondary call, given by the birds at the same time, was a quieter lower pitched squeaky, 'sssquip, sssquip', rather like the creaking leather makes when it is taut. Each member of the party was on the alert, and any one would give an insistent alarm squeak, 'peat'. This note was more drawn out and agitated when adults were alarmed at a nest. These calls have been heard all the year round by J. M. Feely (in conversation), and even two birds alone would call in this manner.

A display which was a development of the mutual song was seen once. One evening, ten birds of two parties of four and six joined together. One bird would start to call, others joining in, with both primary and secondary calls, so that three or more birds were calling at once. Sometimes as others joined in so the first birds stopped. The primary call was repeated much faster as the birds became excited. The singing birds would perch close together, with beaks pointed upwards and they would jerk up and down flitting their wings and cocking their tails. Sometimes a short aerial flight was made, flying up a few feet and tumbling back to the perch, or flying down to the ground rapidly snapping their wings against their bodies, rather in the manner of a *Bradypterus baboecala*. As one set of birds started singing, so might another in an adjacent bush. Then feeding would take place before the birds started another display. Mrs. Lemon (in conversation), who has spent much time on the Nyika, said that the birds displayed like this all day in October, but now (January) only did so at sunrise and sunset.

Breeding pairs did not defend their nest area from other individuals. The nests found frequently had a party of birds nearby, and in one case four adults were seen carrying food to a nest and calling in alarm when disturbed. Ten nests were found of which five were occupied. They were large bulky balls, rather like a small nest of *Centropus*. They were about 2-4 feet up, in one case 6 feet, and wedged into bushes, bracken and herbs. No attempt was made at concealment and one was at 4 feet, in an exposed *Philippia* bush on the bank of a stream. They were made of broad blades of dry grass, mainly of *Panicum* sp., but also of *Setaria*, *Digitaria*, *Urochloa* and *Imperata*. A nest at the top of a pine sapling in a windbreak was made of grasses of all five of these genera. The grass blades were wrapped round

the nests, and only traces of cobweb were used. The lining was of complete seed heads of grasses, in one case the rammenta of a tree-fern with soft pappae of composites on top.

The contents of five nests were c/2, c/3, 2Y, 3Y, and 3Y and 1 addled egg. All the eggs are light green, tending to turquoise in ground colour, very finely and profusely marked with browns. Five measure 19.2–19.9 x 13.9–14.2 mm. and the addled egg 17.4 x 14.0 mm. The nestlings had two black tongue spots which blurred together and faded as they grew older. Juveniles not long out of the nest (three sets of 2Y, and one of 1Y) were easy to recognise by their short tails and yellow gape flanges. The fully grown juvenile (one set) could only be recognised by its yellow palate, that of the adults, as supposed by Lynes (1930: 328), being black. Four adults and six juveniles were collected. The juveniles differ from adults in plumage as described by Lynes (*loc. cit.*), and had irides grey-brown rather than red-brown.

Acknowledgements: I am greatly indebted to C. W. Benson, who made the Nykia trip possible for me, and for his help in the preparation of this paper, especially the taxonomic section. I am also grateful to M. P. Stuart Irwin, of the National Museum, Bulawayo, for the loan of specimens; to J. M. Feely and Mrs. Paul C. Lemon for information about *C. nigriloris*; to A. Angus, of the Agricultural Research Station, Mt. Makulu, for identifying the plants mentioned, and to the Director of the Rhodes-Livingstone Museum for various facilities.

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NOTE by C. R. S. PITMAN

As the eggs of *Cisticola njombe mariae* and *Cisticola nigriloris* have not been previously described, C. W. Benson, with the consent of Carl Vernon, has asked me to examine these eggs critically.

Cisticola njombe mariae. The 17 eggs of this species, which are smooth with slight gloss, vary—according to clutch—considerably in ground colour from pale greenish or pale greenish or pale greenish-blue to light greenish-blue (the green tint is pronounced in all), variously specked, in some streakily, and spotted—in one c/3 discretely and darkly, with a conspicuous ring zone around top of large end—buffy-brown or fuscous on underlying lilac-grey, minutely and finely but sparingly all over. In two of the sets (c/2 and c/3) the markings are bold and clouded—of broad pale streakings of pale buffy-brown on underlying very pale lilac-grey,

most of these markings concentrated in a conspicuous broad zone around the top of the large end. In shape these eggs are mostly ovate, some elliptical, though a few (c/2) are rather squat and rounded. The lilac-grey markings are mostly not readily perceptible.

Cisticola nigriloris. These five eggs (c/2 and c/3) are distinctive, in colour light turquoise (the c/2 are a bit paler) well spotted all over with light fuscous on underlying light lilac-grey and a tendency to form a cap at top or a definite zone around the top of the large end. The eggs are smooth with slight gloss and ovate in shape. These descriptions, insofar as is possible, follow the colour chart in the *Handbook of North American Birds* (1962) by Ralph S. Palmer.

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Sarothrura affinis and some other species on the Nyika Plateau

by C. W. BENSON AND C. S. HOLLIDAY

On the expedition referred to in Vernon's paper, above, the following species were collected in the Northern Rhodesian sector of the Nyika Plateau, the occurrence of which was not accepted by Benson & White (1957), or based only on sight records:—

Sarothrura affinis antonii Madarasz & Neumann.

♂, 7th January, right testis 13 x 6, left 17 x 6 mm., wing 81 mm., stomach contents macerated insect fragments.

Although Mackworth-Praed & Grant (1962) record the species from Northern Rhodesia, we are unaware of any record prior to those now published. We came to associate with it a typically *Sarothrura*-like call, "huuuu", rising in the scale, lasting about two seconds, followed by an interval of about one second, and normally only repeated twice or thrice, though occasionally as many as thirty repetitions were heard. This call was frequently heard at any time of the day and also at night, and was presumed to emanate from the male (occasionally a rattling, tinny note, lasting two or three seconds, impossible to describe at all adequately, presumed to emanate from the female, was heard). It bore a strong general resemblance to those of other *Sarothrura* spp. (*Ibis*, 1956: 598), attributed to males. But it was perfectly distinct, in particular easily told from that of *boehmei* in being more prolonged, from that of *elegans* in being less so, while unlike that of *lynesi* there was no change in intensity. *Rufa* has also been collected in this area (*Bull. Brit. Orn. Cl.*, 72, 1952: 82), no doubt in lush vegetation by streams, but was not heard. It would be especially valuable if tape-recordings could be made of the very attractive calls of all the *Sarothrura* spp., including *pulchra*, which C. W. B. has heard in the Mwinilunga District, and has been described by Chapin (1939).

Pace Mackworth-Praed & Grant (1962), who record *antonii* as inhabiting marshes as well as moorland at high altitudes, only occasionally short grass, on the Nyika we only noticed it, commonly, in short grass and bracken on quite dry ground between 6,300 and 7,500 feet, and

never on swampy ground near streams. Not only was it identified by voice, but occasionally individuals were flushed, when the red tail of the male can be distinguished. Cave & Macdonald (1955) record it from a grassy hillside in the Imatong Mts., Stoneham *cit.* Jackson & Sclater (1938) from long grass savanna in the Trans-Nzoia District, and Benson (1953) from dry short grass in Nyasaland. On the other hand, Meinertzhagen (1937) did collect it in moorland bogs on Mt. Kenya.

J. M. Feely (*in litt.*) saw a male (red tail discerned in flight) on the Nyika in June; likewise C. B. Cottrell on 7th December. These dates, together with our own for January, and those in Benson (1953), do not suggest that this species has any movements in this part of Africa, unlike certain other Rallidae. As other *Sarothrura* spp., it evidently breeds in the rains. Not only were the testes of our specimen greatly enlarged, but eggs have been collected in eastern Southern Rhodesia in January (Smithers *et al.*, 1959).

Coturnix coturnix africana Temminck & Schlegel.

4♂, 4-12 January.

All in breeding condition, as was a female collected across the border in Nyasaland.

Pogoniulus (Viridibucco) leucomystax (Sharpe).

♂, 2♀, 2-10 January.

Sylvia atricapilla atricapilla (Linnaeus).

♀, 2 January.

From edge of evergreen forest. Several males also seen.

Hirundo daurica emini Reichenow.

♀, 6 January.

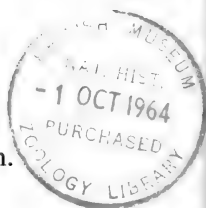
Ploceus (Xanthoploceus) bertrandi (Shelley).

Adult ♀, with feathered nestling, 10 January; immature ♂, 11 January.

The first two specimens were collected by Vernon at a nest, very like that of *P. xanthops*, made of dry grass, lined with soft plant seed-heads, slung at the end of a *Lippia* bush, eight feet above rank grass and bushes by water, on the edge of a forest patch. In the colour of the head, the immature male agrees quite well with the right-hand figure in plate II, *Ibis*, 1893. The crown and sides of the head are mainly olive, some feathers being margined with blackish, none completely black as in the plate. The nestling is similar in plumage to the immature specimen. Both had the iris pale grey, whereas in the adult female it was yellow.

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The following is a list of the names of the persons who have been elected to the office of Justice of the Peace for the year 1900. The names are given in alphabetical order of their surnames.

John A. Smith, James B. Jones, William C. Brown, Charles D. White, Edward F. Green, George H. Black, Henry I. Grey, Thomas J. Pink, Richard K. Blue, Robert L. Yellow.

These persons were elected by the voters of the several precincts in the county at the general election held on the 1st day of November, 1900. The names of the persons who were elected to the office of Justice of the Peace for the year 1901 are given in the following list.

John A. Smith, James B. Jones, William C. Brown, Charles D. White, Edward F. Green, George H. Black, Henry I. Grey, Thomas J. Pink, Richard K. Blue, Robert L. Yellow.

The names of the persons who were elected to the office of Justice of the Peace for the year 1902 are given in the following list.

John A. Smith, James B. Jones, William C. Brown, Charles D. White, Edward F. Green, George H. Black, Henry I. Grey, Thomas J. Pink, Richard K. Blue, Robert L. Yellow.

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Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

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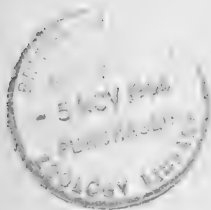
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DINNERS AND MEETINGS FOR 1964

20th October, 17th November, 15th December.

no Nov.

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BRITISH ORNITHOLOGISTS' CLUB



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February 1, 1908

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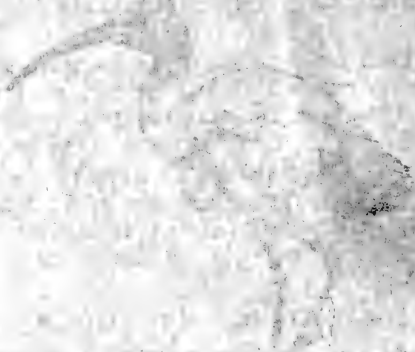
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W. L. RORER

Special Agent in Charge

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Washington, D. C.



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The six hundred and nineteenth meeting of the Club was held at the Rembrandt Hotel, London, on the 20th October, 1964.

Chairman: Major-General C. B. Wainwright

Members present 37; guests 12.

Sir Landsborough Thomson spoke on the compilation and scope of *A New Dictionary of Birds* shortly to be published.

Lady Lathbury showed and commented upon two films in colour of East African birds and mammals.

Notes on *Andropadus masukuensis* Shelley and the status of *Andropadus tephrolaema kungwensis* (Moreau)

by B. P. HALL AND R. E. MOREAU

Received 10th June, 1964

We have recently had occasion to examine the status of *Andropadus tephrolaema kungwensis* described from the Kungwe-Mahari mountains on the east side of Lake Tanganyika (Moreau 1941: 60) and believe that it does not belong to the species to which it was originally ascribed but to *Andropadus masukuensis* (which certainly forms a superspecies with, and by some is regarded as conspecific with *A. montanus*—the older name). There are no very clear diagnostic differences between *A. masukuensis* and *A. tephrolaema* (*sensu lato*, including *nigriceps* subsp. and *chlorigula*) but in the latter the colours tend to be brighter and stronger, the bills blacker and heavier and the birds, on the whole, rather larger than in *A. masukuensis*.

In colouring and bill character the Kungwe birds, now represented in the British Museum by two males from Kungwe and a somewhat damaged female from the Matali Mts. (about 6° N: 30° 30' E. and 40 miles east of Kungwe) seem closer to *A. masukuensis* and in particular to *A. m. kakamegae*. This is a grey-throated, grey-headed form known from the Elgon district and the mountains west of Lakes Albert, Edward and Tanganyika. It is represented in the British Museum only by the type, a male from Kakamega. We therefore applied to Professor Schouteden, who most

kindly lent 29 skins from the mountains of the eastern Congo and a male from Mt. Elgon. This series shows that the northernmost birds tend to have the under parts a little brighter (with more yellow pigment) than the more southern birds. There is also a slight tendency for the northern birds to be smaller than the southern, and especially shorter in the tail: males from Elgon and Kakamega have wings 81, 82; tails 74, 74; from Wago, west of L. Albert, wing 75; tail 78; from Lutunguru, west of L. Edward, wings 78, 80, 80, 84; tails 75, 78, 82, 80; while males from the southernmost locality, Kabobo Mt., at about 5° S, west of Lake Tanganyika, have wings 84, 84, 84; tails 79, 81, 83. The biggest male of the whole series, from Masango, about 120 miles north of Kabobo, has wing 85; tail 82 mm.

The two Kungwe males have measurements outside the range of the foregoing series, wings 91, 93; tails 89, 86, while the Matali female, whose wings cannot be measured, has tail 83, compared with 72–81 in the 9 Congo females available. Provisionally therefore, the name *kungwensis* is retained, on the character of larger size, for the population isolated on the east side of Lake Tanganyika, which will now be known as *Andropadus masukuensis kungwensis*.

In the course of studying this species, specimens were borrowed also from the Museum of Comparative Zoology, Harvard, through the kindness of Dr. Raymond Paynter, in order to ascertain the ranges in southern Tanganyika of the green-headed, green-throated *A. m. masukuensis*, the type locality of which is the Masuku Mts. of Nyasaland, just south of the Tanganyika border, and the green-headed grey-throated *A. m. roehli*, the type locality of which is in the West Usambara Mts., about 500 miles away in the north-east of Tanganyika. Specimens from the Uzungwe, Ukinga and Rungwe Mts. had all previously been identified as *masukuensis* (Bangs & Loveridge 1933: 187).

We found that true *masukuensis* is confined to the Masuku Mts. Birds from Rungwe, about 45 miles to the north-east and separated by low ground, are very close to *masukuensis*, but show some approach to *roehli*. Those from the Ukinga Mts. which begin only 25 miles south-east of Rungwe and are connected with this mountain by ground over 6,000 ft., are also intermediate but closer to *roehli*, while those from the Songea district to the south as well as those from Uzungwe to the north can be regarded as *A. m. roehli*.

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The African subspecies of the Great Crested Grebe

by C. W. BENSON AND M. P. STUART IRWIN

Received 30th March, 1964

Podiceps cristatus infuscatus Salvadori, type-locality Lake Kilole, southern Abyssinia, has been shown by Benson & Irwin (1963) to have a markedly discontinuous distribution in eastern and southern Africa, restricted to waters at higher elevations. In the Main Gamblian wet phase ending some 12,000 years ago (Clark, 1962), when conditions were

presumably also colder, so that it could have existed at lower elevations than in the present, its distribution may have been more continuous. The present study was prompted by a desire to ascertain whether the populations of eastern and southern Africa, between which there is a gap extending from extreme north-eastern Northern Rhodesia to the Transvaal, differed in any way.

Thanks to the following institutions and individuals we have had the loan of material of the palaearctic *P. c. cristatus* (Linnaeus) and of *infuscatus* from:— the British Museum (J. D. Macdonald and Mrs. B. P. Hall), the Transvaal Museum (O. P. M. Prozesky), the Durban Museum (P. A. Clancey) and the South African Museum (J. M. Winterbottom). In addition, in the National Museum, Bulawayo, there were already available two eastern African specimens, to which five more have been donated from the Coryndon Museum, Nairobi, thanks to J. G. Williams, and two palaearctic specimens from the Zoologisch Museum, Amsterdam, thanks to K. H. Vooüs. In all, nine specimens of *cristatus* from England, Holland and Rumania (six in summer dress, three in winter dress) have been available; likewise 15 of *infuscatus* from the Cape Province, Natal and the Transvaal, and eight from Abercorn, north-eastern Northern Rhodesia north to Abyssinia. All the specimens of *infuscatus* are in summer dress except for one from Salisbury Island, near Durban, Natal, 7th July, 1959 (Durban Mus. No. 397). It was found oiled, and was probably an off-season migrant. Possibly, like *cristatus*, *infuscatus* in the southern sector of its range does have an off-season dress. This Durban specimen is marked (in Clancey's writing) as adult, and we see no reason to differ from this opinion. Other dated southern African specimens, in summer dress, are for the following months:— March (one), May (one), August (three), September (three), November (one), December (three). Attention is drawn to this Durban specimen because according to Jackson & Sclater (1938) in Kenya and Uganda adults do not appear to lose the ruff at any time. Chapin (1932) quotes van Someren to the same effect.

The colour differences between *cristatus* and *infuscatus* have been described by Grant (1915), *infuscatus* in particular lacking the white superciliary present in *cristatus*. Indeed some specimens of *infuscatus* tend to have the lores black or even completely so. Grant also found the upper parts and flanks to be darker in *infuscatus*. This is not so well marked a character, several southern African specimens being no darker than European, though the eight eastern African specimens are all quite decidedly blackish. Six of them were collected as recently as 1959 or later, but the difference cannot be due to *post mortem* changes, because the single Abyssinian specimen examined, from Lake Ashangi, collected as long ago as 1868, is no less dark and blackish. Witherby *et al.* (4, 93, 1943) give as a further character that *infuscatus* has the chestnut of the "tippet" more yellowish, but this we cannot uphold.

Considering possible differences between southern and eastern African specimens, the majority of the former are certainly paler on the upper side and flanks. Also, excepting the Abyssinian specimen, five from Lake Naivasha, one from Lake Basotu, northern Tanganyika and one from Abercorn have little intervening chestnut between the white of the throat and the black of the "tippet", the southern African specimens (and those of *cristatus*) having more extensive chestnut. There is possibly also some

difference in the colour of the bill. In three southern African specimens it was recorded by the collector as mainly reddish-brown; in the specimen in winter dress from Durban as deep shell pink, culmen dusky, but in four from Lake Naivasha as follows:— dark blackish-horn tinged red, lower mandible paler; blackish-horn, tinged red on lower mandible; reddish-brown, paler on lower mandible; dark horn with reddish tinge, paler on lower mandible. In the specimen from Lake Basotu it is recorded as dull reddy brown. The eastern African specimens do seem to us even now to have darker bills than the southern African, and indeed than the European. Witherby *et al.* (4, 1943) give the bill in adults of *cristatus* as carmine with culmen dark horn-brown. However, none of these three characters is sufficiently constant or clearly defined to warrant formal separation of the eastern African population by name.

Measurements in mm. of the material examined are as follows:—

	Wing		Culmen from base
	Europe		
5 ♂♂	187, 189, 189, 190, 191		56, 58, 62, 62, 64
3 ♀♀	179, 179, 182		52, 55, 58
1 ♂	190		60
	Eastern Africa		
5 ♂♂	179, 181, 182, 185, 190		56, 57, 59, 59, 64
3 ♀♀	174, 178, 180		52, 54, 56
	Southern Africa		
5 ♂♂	173, 176, 179, 179, 181		54, 58, 60, 61, 62
7 ♀♀	162, 166, 174, 174, 174, 177, 180		52, 54, 54, 56, 56, 58
3 ♂♂	178, 179, 189		53, 62, 62

In addition, Mrs. B. P. Hall has kindly given us the wing measurements for further specimens in the British Museum:— (a) Eastern Africa (Kenya and Uganda), 3 ♂♂, 179, 183, 189; 2 ♀♀, 172, 185 mm. (b) Southern Africa, 1 ♀, 175; 1 ♂, 175 mm.

Thus, regardless of sex and considering the figures in Witherby *et al.* (4, 1943) for European birds, the extremes of wing-lengths are as follows:—

Europe: 175–195.

Eastern Africa: 172–190.

Southern Africa: 162–189.

There is considerable overlap between the three series of specimens measured by us, though the averages, including Mrs. Hall's figures, work out respectively at 186.2, 181.3 and 175.9, the European being the largest, the southern African the smallest. The unsexed southern African specimen with wing 189 mm. is outstandingly large. The measurement has been re-checked and is correct. Those of the two very small southern African specimens, wing 162, 166 mm., have also been re-checked. Nor can we find any evidence that they are in moult. The culmen-lengths show no significant difference at all, the averages working out respectively at 58.5, 57.1 and 57.3, the European figure being slightly the largest.

To conclude, if isolation between the eastern and southern African populations continues, it might be that in another 10,000 years the latter would be worthy of a subspecific name.

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Intestinal caeca in the South African Columbidae

by MILES B. MARKUS

Received 21st April, 1964

Intestinal caeca are to be found in some columbid species but are absent in many others. The specific variation shown by the Columbidae with regard to the presence or absence of these diverticula would appear to be of special interest in view of the fact that the majority of avian families do not exhibit the same inconstancy.

If the Green Pigeon *Treron calva* (Temminck & Knip) is placed in a family distinct from the Columbidae, 12 South African species (6 genera) belonging to the latter category are currently recognised. A number of specimens of each of the following species have been dissected: Rock Pigeon *Columba guinea* Linnaeus, Cape Turtle Dove *Streptopelia capicola* (Sundevall), Laughing Dove *Streptopelia senegalensis* (Linnaeus), Namaqua Dove *Oena capensis* (Linnaeus) and Emerald-spotted Wood Dove *Turtur chalcospilos* (Wagler). Intestinal caeca are absent in *O. capensis* and *T. chalcospilos* but are present in *C. guinea*, *S. capicola* and *S. senegalensis*. They are also present in the Red-eyed Turtle Dove *Streptopelia semitorquata* (Rüppell) (Verheyen, 1957: 9).

Existing information for certain other South African representatives does not appear to be altogether satisfactory and data on those not listed above are either inadequate or lacking and should, where possible, be based on the examination of more than one bird, in view of the fact that the presence in this family of a single intestinal diverticulum as an intra-specific variation is not unknown (Beddard, 1898: 308; Mitchell, 1901: 239). There is reasonable evidence that caeca are absent in the Blue-spotted Wood Dove *Turtur afer* (Linnaeus) but confirmation would be useful. In the case of the Rameron Pigeon *Columba arquatrix* Temminck & Knip, careful examination of the wall of the gut in the area of junction between the ileum and rectum should be made, if possible, in the case of fresh specimens rather than those which have been placed in a preservative.

One hesitates to say whether or not the caeca are of any systematic importance as taxonomic value cannot be assessed independently of adaptive significance. Whatever their function may have been in the past, the present role of the vestigial intestinal caeca in the Columbidae is probably nothing more than lymphatic.

This paper was prepared while the author held a Research Grant awarded by the South African Council for Scientific and Industrial Research.

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On the races of the Whimbrel *Numenius phaeopus* wintering in south-eastern Africa

by P. A. CLANCEY

Received 17th March, 1964

Rudebeck (1963) has recently endeavoured to review our present knowledge of the races of the Holarctic Whimbrel *Numenius phaeopus* (Linnaeus) occurring during the period of the northern winter in Africa south of the Cunene and Zambesi Rivers, from which general area two forms are currently admitted, viz., *N. p. phaeopus* (Linnaeus), 1758: Sweden, usually considered to be of general disposition, and *N. p. alboaxillaris* Lowe, 1921: Inhambane district, Moçambique, believed known from within present limits only on the basis of the original material taken in Portuguese East Africa. Unfortunately, Rudebeck worked on notes taken from skins in the Transvaal Museum collection many years prior to the preparation of his note, and did not have later access to the material, all of which was collected over half a century ago.

The series of Whimbrels in the Durban Museum collection is comparatively fresh, several having been taken within recent years, and study of this assemblage throws much light on the question of the races occurring in South Africa, showing that three races occur within South African limits in the east.

Apart from several examples of the nominate race taken in Durban Bay, Natal, in the months of December, March and April, two specimens of the much disputed *N. p. alboaxillaris*, a ♂ and ♀ taken on 27th December, 1961, are included in our series. Originally believed to have its breeding grounds on the south-east African coast and the Mascarene Islands, *N. p. alboaxillaris* is now known to nest on the steppes lying between the lower reaches of the Volga and Ural Rivers, to the north of the Caspian in Kazakhstan, U.S.S.R. (see Dementiev and Gladkov (1960)).

N. p. alboaxillaris is slightly paler on the upper parts and wings than *N. p. phaeopus*, the scapulars and tertials rather more edged with whitish, and the rump and upper tail-coverts are white, only the longest of the last named with reduced transverse barring. On the under parts whiter than the nominate race, the ventral streaking more restricted to the lower throat and upper breast, the lateral surfaces approaching plain white, while the axillaries and under wing-coverts are white without the transverse sepia barring of other races, the dark areas reduced to fine mesial streaks. The two specimens from Natal represent the first records of the race concerned for the Republic of South Africa, and are the most southerly examples of the race yet taken. The finding of these skins in our collection confirms Rudebeck's prediction that this form would be found to the south of Moçambique.

In addition to the specimens allocated to *N. p. phaeopus* and *N. p. alboaxillaris*, a specimen showing the diagnostic characters of a third race requires to be considered. A male in its first year taken on 12th October, 1961, in Durban Bay has the white surface of the back and rump densely

freckled and streaked with light sepia, these markings merging imperceptibly into the speckling and transverse barring on the upper tail-coverts. On the under parts, the ground to the throat and breast streaking tends to be browner than in *N. p. phaeopus*, and the transverse barring of the lateral surfaces, including the flanks, is also more intense, while the axillaries are heavily transversely barred with sepia. Unfortunately, the specimen concerned is in full moult, but gives the following measurements: wing (flattened) 214, exposed culmen 76, tail 90 mm. It has been carefully compared with specimens of *N. p. variegatus* (Scopoli), 1786: Luzon, Philippines, from China, Sarawak and the Solomons sent out from the British Museum (Natural History). The specimen from Durban is exactly matched in the extent of the white back and rump speckling and axillar barring by a 3rd December, 1956 ♀, *N. p. variegatus* from Batang Salak, Sarawak, and a 5th May, 1911 ♀ from Wei-hai-wei, China, and is only a little less speckled than in a ♂ from Malau Paina Island, Solomons, dated 1st April, 1934. A fourth *N. p. variegatus* from the British Museum collection, a ♂ from Shanghai, China, dated May 1898, is in more abraded dress than the others, the mantle feathers quite eroded, and has the entire white back, rump and upper tail-coverts densely speckled and transversely barred with sepia. In the light of these observations, I attribute the 12th October, 1961, specimen from Durban to *N. p. variegatus*. This race has not been suspected of reaching Africa during its non-breeding peregrinations, not being listed by Sclater (1924–1930) and later authors.

Ridgway (1919) defined the characters of *N. p. variegatus* when compared with *N. p. phaeopus* as ‘‘rump always more or less (sometimes heavily) spotted; axillars more heavily and extensively barred; size averaging smaller (wing averaging 227 in male, 237.7 in female; exposed culmen 73 in male, 78.8 in female; tarsus 55.5 in male, 56.2 in female)’’. The specimens of *N. p. variegatus* available from the eastern wintering grounds (localities given above) are not smaller, and if anything range a little larger than in our *N. p. phaeopus*, having wings in 2 ♂♂ 241, 251, exposed culmens 82.5, 84, tails 95.5, 100; 2 ♀♀ wings 247.5, 253.5, culmens 82, 92.5, tails 97, 98 mm. I suspect Ridgway’s measurements are of unflattened wings. The wings of 7 ♂♂ of *N. p. phaeopus* available to me measure 222–245.5 (234.0), culmens 77–84 (80.0), tails 95–102 (98.2), while a single ♀ has a wing of 242.5, culmen 81, tail 98 mm. Though the material at hand in Durban is not sufficient to make any worthwhile pronouncement, I believe that the range of size-variation within both *N. p. phaeopus* and *N. p. variegatus* is such that this variable is of doubtful use for the determination of the races concerned, and the pygal and axillar characters are, in my view, much more definitive.

The breeding range of *N. p. variegatus* seems not to be in contact with the eastern populations of *N. p. phaeopus*, judging by the valuable range map in Voous (1960), and is situated in eastern Siberia from about the Lena River eastwards, and the form winters in southern and eastern Asia, south through the islands of the Sunda Chain and Philippines to New Guinea and neighbouring and western Pacific archipelagoes and Australasia (after Peters, 1934). Occasionally to the eastern seaboard of Africa (Natal once).

Arising from this study of the material of the Whimbrel from Natal in the collection of the Durban Museum, it can be concluded that three races

occur in the non-breeding season in the bays and estuaries of south-eastern Africa, these being *N. p. phaeopus*, *N. p. alboaxillaris* and *N. p. variegatus*. The first named is plentiful, while the second, which has a restricted breeding range in comparison with the first, is probably more general than the circumscribed records from Moçambique and Natal suggest, while the last named is almost certainly of rather irregular occurrence, the main wintering grounds being further to the east than Africa. Recently, *Calidris ruficollis* (Pallas), which also breeds in eastern Siberia and has not hitherto been suspected of occurring in Africa, has also been taken in Durban Bay, Natal (Clancey, 1964).

I am grateful to Mr. J. D. Macdonald, Keeper of the Bird Room, British Museum (Natural History), London, for the loan of relevant material.

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A further note on the egg of the Red-chested Cuckoo *Cuculus solitarius* Stephens

by CHARLES R. S. PITMAN

Received 11th February, 1964

I referred ⁽¹⁾ to an egg of *Cuculus solitarius*, found in Southern Rhodesia, which was not the usual coffee colour, but was pale green marked with a few rusty-brown spots, some of them very pale and very small; and from which a Red-chested Cuckoo eventually hatched and was reared to maturity. I have now received from Mr. G. H. H. Brown, a Regional Government Agent (prior to independence known as District Commissioner) in the Rift Valley Region of Kenya, the description of a somewhat similar egg of this cuckoo. It is a very blunt oval and reckoned to be about 20–22 mm. by 17–18 mm. (but not precisely measured); the ground colour fairly light blue, densely freckled all over with medium and light brown, and closely resembling the eggs of the British Blackbird. The precise locality is Baragoi in the Samburu District, an area of open, treeless plains of grass and small bushes, intersected by watercourses lined with several species of acacia thorn-trees and *Ficus*. The Red-chested Cuckoo is not uncommonly heard calling along these watercourses. The egg was found on 20th December 1963 at a time of the year when the rising sun comes over the horizon at 0645; it was laid between 0700 and 0715. The nest tree was a small 15 feet high acacia, in fresh leaf, within 20 feet of a Government Rest House. The cuckoo suddenly commenced to call a few minutes before 0700, and at such short range the repeated call was “quite deafening”. Peering into the tree, Brown saw a Red-chested Cuckoo sitting on a small nest and when he moved a little closer to get a better view a small shrike—not identified as the sun was in his eyes—almost certainly a *Tchagra*—flew out of the nearby leafy branches, but was only in view for an instant. The nest was a typical *Tchagra* nest. As

this bird did not return and no other small bird was seen there, it was not possible with certainty to establish the identity of the host. According to Brown "The cuckoo fell silent for a few minutes after I returned to my seat. It then called again repeatedly for about a minute, and fell silent again for a further few minutes. At 0712 it again began to call repeatedly; at some time during this second silence it had turned round on the nest, though I did not see it actually do this. After over a minute of continuous calling, it again relapsed into silence; but very shortly after, called three or four times and then abruptly flew away". He was able to watch the cuckoo through binoculars at close range for quarter of an hour. No other cuckoo was seen or heard in the vicinity at the time, nor did he hear any answering calls to those from the bird on the nest. Unfortunately, he did not look on the ground below the nest to see whether an egg had been ejected. As Brown was due back there in a week he left the cuckoo egg in the hope of making some further observations, but when he returned the egg had disappeared and the nest was empty and deserted. There was no trace of any egg on the ground below.

This is a particularly valuable observation as it is an additional record of an unusual type of *C. solitarius* egg which has (*l.c.*) been recorded from Southern Rhodesia, from the Belgian Congo (oviduct) by Chapin (²: 190), and *vide* (³: 68) figured by Nehrkorn and said to come from 'Massai-land' in East Africa. A *C. solitarius* egg from the nest of the Cape Wagtail, *Motacilla capensis* sent me from South Africa is pale greenish heavily marked with shades of brown and may link the previously described spotted or freckled egg with the well-known normal type which is so profusely and finely marked as to appear almost immaculate.

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¹ Pitman, C. R. S. *Bull. Brit. Orn. Club*, 81 (3) 48-49, 1961.

² Chapin, James P., *Birds of the Belgian Congo*, 2, 1939.

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Nesting materials used by *Cisticola juncidis* (Rafinesque)

by DEREK M. COMINS

Received 16th March, 1964

The nest of *Cisticola juncidis* has been described by Lynes (1930, 79) as:—

"... of soda-bottle type ... with entrance facing skywards; made by binding together a large number of soft green grass blades with plant fibres and cobweb, and lining copiously with plant down ... In its materials, the nest of *juncidis* more or less resembles those of other *Cisticolae*, but the type of architecture and particularly the skyward entrance hole is quite unique and identifies the owner with certainty."

A nest (E.L. 8833) donated to the East London Museum by Mr. R. A. Bode of Idutywa, Transkei, Cape Province, agrees in appearance with the above description. The nest is 11 cm. in height; the diameter is 5 cm. at the base and 3 cm. at the apex; the diameter of the entrance hole is 2.5 cm. The nest is suspended (the base being approximately 5 cm. from ground level) in a living tuft of *Eragrostis curvula*. The walls and base of the nest consist of a thin tissue which binds the inner surfaces of the grass leaves. The leaves are not laterally contiguous: threads of material from the nest are laced round the leaves at intervals.

It was noticed that there is a crimp in the material at the apex of the nest. In view of the fact that no reference is made by Lynes (1930) and Vincent (1948) to the use of wool by *Cisticola juncidis* in nest construction, material from the nest was forwarded to the South African Wool Textile Research Institute for determination. The material was found to consist (definitely) of wool and (by comparison) spider-web and hair which was thought to be from the pappus of *Asclepias fruticosa*.

The use of wool in addition to spider-web in the construction of the nest of this *Cisticola* is of interest for Skead (1959, 278) has described a similar phenomenon in the case of the Cape Penduline Tit [*Anthoscopus minutus minutus* (Shaw and Nodder)]. In both cases the use of wool reflects the availability of this material due to the advent of wool-farming in the areas concerned, together with a degree of plasticity in the choice of nesting material by the birds.

I wish to thank the Director of the East London Museum for placing the nest of *Cisticola juncidis* at my disposal. I am indebted to the Director (per Mr. L. A. Kerley) of the South African Wool Textile Research Institute for identifying the nesting material.

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On birds new for New Guinea or with a larger range than previously known

by A. HOOGERWERF

(continued from page 124—October 1964)

30 & 31. *Gallinago megala* Swinhoe and *G. hardwickii* (Gray)

Pin-tailed and Japanese Snipe

Both these species of snipe were not as yet known from the western part of south New Guinea, but about Kurik in the wet ricefields as well as in the seasonal swamps between the Kumbe and Bian Rivers we saw them regularly during the rainy period.

In April 1962 very often snipe were observed in Kurik's North polder, almost exclusively on fallow ricefields covered with grasslike and other vegetation. In May 1961 as well as in 1962 they were in those paddyfields and in 1962 even as late as 5th June a specimen was seen, flying so well that we did not suppose that it was a wounded or otherwise handicapped bird. On 17th August, 1960 the first snipe of that season was observed in the South polder!

Representatives of this genus were also recorded near Manokwari and in the Kebar Valley (about 500 m. above sea level, Vogelkop) and according to Gyldenstolpe 5) both these species were also secured in the Western Highlands of Central Papua whereas *G. megala* is mentioned for the Wissel Lakes area by Junge 9).

Though I am fairly convinced that in most cases it was the larger *Gallinago hardwickii* which I observed (of which two specimens were secured) it is certain that *G. megala* also occurs in south New Guinea

because one (♀) was shot on 18th December, 1959. On 6th May, 1961 (♀) and 5th April, 1962 (♀?) two *G. hardwickii* were obtained.

On account of the difference in wing size (160 and 162 mm. in *hardwickii* against 145 mm. in *megala*) and in view of the difference in number and construction of the tail feathers I am sure that it is *hardwickii* and *megala* that are discussed here, which are quite different in size and other characters from *Gallinago stenura* and *G. gallinago* known from Indonesia.

For five females of *G. megala* Gyldenstolpe 5) mentions as wing and bill size 140–144 and 67–73 mm. (our bird has a culmen of 67 mm.) and Junge 9) gives as wing size for two females 144 and 146 mm. and for two females of *hardwickii* the first author measured wings of 159 and 166 and a culmen of 68 and 73 mm. (our birds have culmen of 67 and 71 mm.). Gilliard and Lecroy 4) mention a wing of 144 and 145 (♂) and 144 (♀) mm. for *Gallinago megala* from Victor Emanuel and Hindenburg Mountains and the very heavy weight of 207 (♂) and 224 (♀) gr., when compared with the weight found by me for a female of the same species (132 gr.). Both these birds were shot on 26th March and 17th April, so shortly before their return to the home range whereas my specimen with a weight of only 132 gr. was secured in December, thus perhaps shortly after its arrival. Also when compared with the weight of both specimens of (much larger) *G. hardwickii* secured by me also in April and May, 166 and 170 gr., these two *megala* specimens were very heavy.

Seasonal differences in weights of 90–120 (September) against 155–170 gr. (April) were found on Java in the species *Gallinago stenura* (Oliver 13).

Though from these figures it is evident that there may be a considerable difference in weight between recently arrived snipe and those just before their return to the breeding grounds, I suppose in this case the difference between *hardwickii* and those *megala* from the Hindenburg Mountains, all obtained in the same season, cannot be correct.

32. *Erythrogonys cinctus* Gould

Red-kneed Dotterel

This is certainly not a regular visitor to the part of New Guinea discussed here because I observed it only three times, all in April 1961. The first was seen and bagged on a wet ricefield on 10th April; on 14th April, there were two at exactly the same locality and on 16th April two specimens were observed of which one was obtained. All these were apparently stragglers from Australia where the species is common in certain parts. This dotterel was not recorded for New Guinea until now.

33. *Calidris tenuirostris* (Horsf.)

Eastern or Stripe-crowned Knot

Because the Eastern Knot is only mentioned in Mayr's list for Port Moresby, Astrolabe Bay and Trobriand Islands so far as it concerns New Guinea, it seems important to record that this northern migrant is among the most common winter visitors along those beaches of south New Guinea we know best, nearly always present during September till May.

Together with *Limosa limosa*, *Charadrius leschenaultii*, *Erolia acuminata* and *Calidris canutus*, this knot appears there in many thousands. Enormous flocks were observed on 11th March, 22nd April and 27th November, 1960, on 31st March and 9th April, 1961 and also on 18th and 25th February and on 5th and 15th April, 1962. On 6th November, 1959 eight and on 9th November seven were bagged, several with a single shot.

In May many were still present and even on 1st and 23rd June and on 1st July and as late as 25th August they were seen along the beaches. On 6th September, 1960 I saw several hundreds of migrants, for the greater part this knot and *Erolia acuminata*, but they had perhaps newly arrived from their northern breeding grounds. So far as I can remember and can be traced in my notes, I never saw this species beyond the beach.

34. *Calidris canutus* (Linn.) European or Grey-crowned Knot

The species was not as yet known from New Guinea though it may be considered a rather regular visitor to the localities frequented by *Calidris tenuirostris* and most other migrating Scolopacidae. Usually both species of knot were recorded in mixed flocks, sometimes together with other waders, especially those already mentioned when discussing the Eastern Knot (No. 33).

They were most numerous during autumn (October, November) and early spring (March, April) but from December till February less common and sometimes absent, though the fact that birds in full winter dress are more difficult to distinguish from the Eastern Knot may lead to this conclusion.

On 5th April, 1962 some enormous flocks containing perhaps 3-5000 *Calidris tenuirostris*, *C. canutus* and *Limosa limosa* were along the beaches between the Kumbe and Bian Rivers of which 22 belonging to these three species were obtained with a double shot. On 10th April there were again huge flocks; also on 15th April. During that period a large percentage of the observed individuals already showed distinct traces of the spring plumage making such birds at once distinguishable from the Eastern Knot with which they were seen in nearly all cases.

Towards the end of April their numbers declined but on 28th April I counted 150 together with some *Limosa limosa*. The latest observation is of 6th May but—as was the case in April—there was still an important percentage in full winter plumage.

35. *Crocethia alba* (Pallas) Sanderling

Again a species which is not in Mayr's list, but van den Assem (1) mentions a visual observation along the shore near Merauke (16th February, 1958). In my experience this migrant from the Northern Hemisphere is certainly far from being common in south New Guinea for I observed it only on very rare occasions and only along the beach between the Kumbe and Bian Rivers. But because this bird is not of striking appearance it may have been overlooked a number of times amidst the immense numbers of northern migrants which used to visit these areas.

On 27th November, 1960 I saw my first specimen with a small flock of *Charadrius leschenaultii*; this bird was shot. About a week later, on 5th December, another was seen and for the last time I saw one on 18th December.

36. *Erolia testacea* (Pallas) Curlew-Sandpiper

This is another northern migrant not previously known from New Guinea though presumably it too may be considered a regular visitor to south New Guinea.

The first was seen along the beach between the Kumbe and Bian Rivers on 19th April, 1959, together with many other migrating Scolopacidae. On 25th May, 1960 some were met with in a mixed flock of many other

migrants, *Erolia ruficollis*, *Erolia acuminata*, *Xenus cinereus* and *Tringa nebularia*. This was on a mudbank along the south coast of Frederik Hendrik Island. Almost exactly three years after my first record, viz. on 15th April, 1962, two were recorded on the same beach as in 1959 and in that period the species was a rather regular, maybe even a permanent visitor to the wet fallow ricefields of the North polder. On 13th April two were secured there and they showed far advanced spring dress though some others seen on the same occasion still had their winter plumage.

On 17th April there was a bird wearing a nearly complete spring dress together with one in winter plumage and some days later there were "winter-birds" looking for food on the partly inundated paddyfields where a large number of other waders, principally *Erolia acuminata*, did the same. There were still some in the latter part of April; the latest observation is of 25th May (1960) when I saw some together with a number of other migrants, which may be considered a late date for birds breeding in the Northern Hemisphere. I failed to see more than about five together though as a rule mixed with other Scolopacidae.

From my experience the Curlew-Sandpiper may be observed along the beach as well as more inland, but the species is perhaps exclusively a visitor of a muddy habitat.

37. *Limicola falcinellus* (Pont.)

Broad-billed Sandpiper

When Mayr's list appeared the species was not known for New Guinea but Junge (9) mentioned its occurrence on account of two specimens obtained in November 1939 in the Etna Bay (south-west New Guinea).

On 19th April 1959 a single specimen was picked up after we killed it together with some *Erolia acuminata* on the beach between the Kumbe and Maro Rivers. We did not recognise it until we took it up and it was the only time the presence of the species was established with absolute certainty, though we are almost sure having observed it on 25th and 26th May 1960 on coastal mudbanks along the south coast of Frederik Hendrik Island about 20 miles east of Cape Valsch. Also in both these cases some of them were with a small flock of *Erolia acuminata*.

Because we have very little experience with the Broad-billed-Sandpiper it may be that we repeatedly overlooked it amidst the many other Scolopacidae visiting the beaches of southern New Guinea, especially when mixed with *Erolia ruficollis*. We do not suppose this species to be more than a rare visitor to the part of New Guinea discussed here.

38. *Phalaropus lobatus* (Linn.)

Red-necked Phalarope

Though Mayr remarks that this species is "very common between Halmaheira and Waigeu and along the north coast of New Guinea between Waigeu and Dampier Islands" I failed to detect a single specimen along the west coast of the Geelvink Bay and the north coast west of Manokwari, areas which were fairly regularly visited by me between October 1962 and March 1963. The species is also known from the Aru Islands and Misool, but at Sorong too, where I stayed during the first part of October 1962, I did not see it though Bergman observed flocks resting on the sea during a journey from Sorong to Pulau Adi (Gyldenstolpe 6). I also failed to record the species on Frederik Hendrik Island during my visit in May 1960 or in the Mappi and Asmat regions which I visited in the latter part of 1959 and again in the beginning of 1960.

I have only a single observation from south New Guinea where a solitary bird was seen on 24th January, 1959, a few days after my first arrival at Kurik. That particular bird was swimming in a shallow puddle in an inundated ricefield of the South polder where it was observed at close range during a long period so that there is not the slightest doubt about its identity. From my experience it seems that this phalarope must be considered a very rare visitor to south New Guinea, contrary to nearly all other migrating waders of which many species are common and often in huge numbers.

39. *Stiltia isabella* (Vieill.)

Australian Pratincole

Mayr thinks it possible that this pratincole breeds in south New Guinea on account of a young bird from Merauke, without, however, giving any particulars concerning the approximate age of that bird or its present whereabouts. He further mentions the species for Astrolabe Bay and Utanata and Digul Rivers.

Because I am of the opinion that this bird visits the surroundings of Merauke and the whole south coast of western New Guinea exclusively as a migrant or straggler from Australia where it is said to breed (Neville W. Caley 3) between September and February—during a period of absence in south New Guinea—it seems worthwhile to publish my experience.

I failed to meet with the species during January, February, April, October and December and I have only one record for March: on 22nd March, 1961 there was one specimen on a fallow ricefield near Paal Putih along the mouth of the Maro River. I only once observed it in November; all other records are from between May and September with minima (and only in 1962) during August and September.

The birds appeared in large numbers during May and the beginning of June 1961 on harvested ricefields of both polders at Kurik. On 1st June I estimated the number in the South polder at about 200; I had never seen so many of them and several were very "tame". In the late evening of 28th May 50–75 of these resting or sleeping birds were startled by the lights of my motorcycle when I drove over a distance of about 800 m. along the main road through the North polder. I stopped because I was afraid of running over the birds!

In 1962 the first specimens were seen on 10th May and during the whole month varying numbers could daily be observed in both polders but the species was distinctly less common than in the previous year. Also during the months to come the birds were regular visitors to Kurik and surroundings but in August and September coming only sporadically though about twenty were seen on 6th September (North polder).

During 1959 and 1960 observations were rather rare: in 1959 only during June and no more than a very few; in 1960 there were some at Paal Putih and in the North polder, on 6th July "quite a few" in this last polder and on 17th August only one at that same locality, but on 10th November 15–20 in the South polder. This was my only November record.

When in south New Guinea this pratincole seems to prefer very dry, often burnt-off savannahs, harvested or fallow ricefields and similar habitats, but along the beach between the Maro and Bian Rivers it was not uncommon. On 13th May, 1962 about 70 were seen scattered over a distance of some miles along the shore and on 17th June and 2nd September several were seen on the same beach.

The erratic occurrence of the species, shows a striking resemblance to the northern Pratincole *Glareola pratincola* which may appear in thousands on Java during certain winters but is rare or absent in other years and the fact that the present species almost without exception was seen during the Australian winter, in any case outside the breeding period there, does not indicate that it breeds in the southern part of west New Guinea. These birds nearly always appear in groups or large flocks without any sign of pair forming or other pre-breeding movements and all four birds collected in June and November showed poorly developed gonads. Therefore I think it justified to consider the species a migrant or straggler from Australia. Perhaps the young mentioned by Mayr was already large enough to reach New Guinea by flight; otherwise it must have been the result of an exceptional breeding.

40. *Chlidonias leucoptera* (Temm.)

White-winged Black Tern

The record of the first specimens of this tern from New Guinea secured in April 1936 on a reef 12 miles off shore near the Benituri River, where the species was said to be "fairly common about the reef" (Rand 15) came too late to be included into Mayr's list. Because this remained the only record for this country it seems worthwhile to publish my notes from which it is evident that it is perhaps a rather common visitor to south New Guinea.

During my trip through the Frederik Hendrik Island in May 1960 I observed the species almost daily above the extensive freshwater swamps, forming the greater part of that island. On 27th May I called this little tern in my diary "of rather common appearance": several specimens were seen in far advanced spring dress showing distinct differences from *Chlidonias hybrida*, certainly a more common visitor to south New Guinea.

In Kurik's ricefields a still more beautiful "summer-bird" was seen on 20th and 24th April, 1960, showing a striking contrast with some others of the species in winter plumage. On 23rd April, 1961 there was a flock of about 30 mixed with *Chlidonias hybrida*, among which were four *leucoptera* in beautiful spring dress and in the late afternoon of 5th May, 1961 I saw a remarkable performance when a similar flock of 35 birds circled with high rapidity above an inundated ricefield of the South polder for almost an hour; in this flock there were six in perfect spring plumage. This was the largest group ever observed by me in that part of the world.

Birds showing traces of the spring plumage were seen on several occasions in April and May 1961 of which two were secured on 10th April but on 6th May I saw specimens still showing apparently full winter plumage. Because the species was very numerous on Frederik Hendrik Island on 27th May and birds in summer dress are rather common in other parts of south New Guinea during April and May, possibly it breeds in New Guinea. However, their common appearance just in those months might point also to the probability of birds passing the coastal lowlands on their way to the breeding grounds in continental Asia.

41. *Hydroprogne caspia* (Pallas)

Caspian or Giant Tern

This large tern was repeatedly observed along the beach between the Kumbe and Bian Rivers. The first seen on 27th November, 1960 was of striking appearance because of its large dimensions and huge pure red bill.

On 4th December there were several on the same beach and on 19th February, 1961 there were four of them together, all apparently fully adult birds which was also the case with a specimen seen on 31st March. A year later, on 25th February, 1962, there were 'rather many' at different places along that same beach and on 9th August, 1962 there were two on the shore between the Kumbe and Maro Rivers. With the exception of both these latter birds, which were passed at very close range, all observed specimens could not be approached within gun-range so that I did not succeed in obtaining one.

Van den Assem (1) mentions the species for the first time for New Guinea: on 16th April, 1958 he observed a single bird along the beach near the mouth of the Kumbe River in the neighbourhood of a small flock of *Gelochelidon nilotica*.

Though the Gull-billed Tern (*Gelochelidon nilotica*) can be found along the coast as well as more inland—it is of common appearance in Kurik's ricefields—the Caspian Tern was only observed along the beach.

42. *Anous minutus* Boie

White-capped Noddy

'Islands in the tropical Pacific Ocean from the New Guinea region and Queensland to the Tuamotu Group' is the range as indicated in Mayr's list, which may be correct, because I, too, know this tern from rocky islands far away from larger land masses. I observed the species on 24th July, 1962 in a rather strange habitat *viz.* along the muddy bank of the Maro River in the immediate neighbourhood of Merauke's harbour! This may be the first record from New Guinea's continent, though Rand (15) mentioned the species from Daru and Mabaduan, localities quite close to the shore of east New Guinea's south coast.

After having observed this bird at close range for a considerable time which enabled us to identify it without the slightest doubt, it flew low above the water to the middle of the Maro River alighting on a place where a second specimen was discovered.

These, in my opinion, were very strange surroundings for this noddy and no doubt an exceptional case, though an employee of Kurik's Rice Estate whom I know as a keen observer of birds told me that he had seen a similar behaviour—sometimes of several together—on different earlier occasions.

(to be continued.)

Notes on the African Finfoot, *Podica senegalensis* (Vieillot) and the Chilean Torrent Duck, *Merganetta a. armata* Gould

by A. W. JOHNSON

Received 29th February, 1964

I feel that the differences in the habits and behaviour of *Podica* and *Merganetta* are just as striking as the similarities⁽¹⁾. Some of these are:

Merganetta, apart from its remarkable efficiency in navigating 'white' water is an expert diver while *Podica* is evidently extremely reluctant to do so.

Merganetta feeds exclusively below the surface, *Podica* while floating on it.

Podica, hugs the banks and when surprised away from cover will "freeze motionless alongside a rock with nothing but the top of the back showing above the water". *Merganetta* never does this (as far as I know) and rather than hug the bank spends most of the day on or around some favourite stone or rock near the middle of the river or stream where the current is running strongest. For *Merganetta* two is certainly not the usual clutch (I suspect the clutch cited by Phillips was incomplete) but rather 3-5 if the eggs and broods of young so far recorded or observed are to be regarded as typical of the species.

In *Podica* the vestigial claw is used for climbing. This is not the case—at any rate I have never seen any such indication in *Merganetta*. I agree with Whiteley's and Crawford's statements that the facility with which they scramble up the slippery surfaces of water-lashed rocks or rounded stones is indeed marvellous but the wings are not used in this process and my impression (not yet proved) is that it is accomplished by a combination of the stiff tail and a vacuum-creating effect of the webbed toes.

Merganetta, as far as is known, always nests in holes and in true duck fashion buries the eggs in its own down. The nest of *Podica* is evidently completely different.

Reference:

¹ Pitman, C. R. S., 1963. *Bull. Brit. Orn. Club*, 83, (7) 127-132.

A New Zealand Scaup x Tufted Duck

by BRYAN L. SAGE

Received 4th May, 1964

The New Zealand Scaup, *Aythya novae-seelandiae* (Gmelin) is a species found only in New Zealand, Auckland and Chatham Islands. It made its appearance in waterfowl collections in Europe and America only comparatively recently and is still far from numerous in captivity.

There are no authentic records of hybridization between this and other species of ducks either in the wild or, until recently, in captivity. The only previously published record of hybridization involving the New Zealand Scaup concerns a cross with the Pochard, *Aythya ferina* (Linn.) which is mentioned in the *Ninth Annual Report of the Wildfowl Trust*, and is repeated by Gray (1958). Mr. S. T. Johnstone of the Wildfowl Trust informs me that this record is in fact incorrect and that the parentage of the hybrid in question was *Aythya ferina* x *Aythya marila*. The Wildfowl Trust did not receive any New Zealand Scaup until 1958.

The present paper describes the previously unrecorded hybrid of New Zealand Scaup x Tufted Duck *Aythya fuligula* (Linn.). This hybrid, which was prepared as a study skin in November 1962, is an adult male in full plumage now in my collection. The bird was bred in captivity and wild hybrids of this parentage are not of course to be expected as the geographical distribution of the two species does not overlap, either during the breeding season or in the winter.

DESCRIPTION AND MEASUREMENTS

In order to facilitate easy comparison the plumage characters of the hybrid, together with those of the males of New Zealand Scaup and Tufted Duck, are given in tabular form:—

	<i>New Zealand Scaup</i>	<i>Hybrid</i>	<i>Tufted Duck</i>
Head and neck	blackish with strong purple and green iridescence; forehead steep; chin and throat dull blackish-brown.	as N.Z. Scaup; forehead almost as vertical but not quite as high; feathers of crown at rear forming a crest as in Tufted Duck.	black, glossed purplish on crown, crest, cheeks and sides of neck; but with greenish gloss evident in some lights.
Under parts	breast dark blackish-brown shading into brown and white, but more brown than white on the belly; vent blackish; sides of body and flanks from lower breast to tail-coverts rich dark chestnut.	breast blackish, shading into white with sparse brownish vermiculations; belly and vent washed brownish grey becoming blackish on tail-body and flanks grey-brown vermiculated whitish.	upper breast black; lower breast, belly, sides of body and flanks white, the latter often with faint dusky freckling; lower belly white finely vermiculated dusky; vent and under tail-coverts black.
Upper parts	uniform blackish with fine "pepper and salt" pale brownish vermiculations; rump and upper-tail coverts blackish-brown.	as N.Z. Scaup, but with purplish gloss on upper tail-coverts	black with dull greenish sheen; mantle and scapulars very finely dusted with buffish.
Wings	underwing white; wing feathers blackish with dark greenish gloss on primaries; white speculum on secondaries.	as N.Z. Scaup, but with the greenish gloss more evident.	primaries dusky brown with darker tips, and inner webs paler; inner primaries with outer webs whitish; secondaries white broadly tipped blackish, the innermost black glossed dull green.

Measurements of males in millimetres

	<i>New Zealand Scaup</i>	<i>Hybrid</i>	<i>Tufted Duck</i>
Wing	175-187*	205	198-208*
Bill	38-41*	40	38-42*
Width of bill at nostrils	20.5	23	22-24
Depth of bill at nostrils	16	20	18
Maximum width	23	23	25-25.5

* From Delacour & Scott (1959); remainder of measurements taken by the author.

The measurements of the hybrid, as can be seen from the table, are rather heterogeneous. The only really intermediate measurement is the

length of the bill from the feathers. In both wing length and the width of the bill at the nostrils the hybrid matches the Tufted Duck. It is interesting to note that the depth of the bill at the nostrils is greater than in either of the parent species, whilst the maximum width is identical to the New Zealand Scaup.

DISCUSSION

The New Zealand Scaup is clearly closely related to the Tufted Duck and the Greater Scaups, all of which are at present Holarctic in their breeding distribution. The evidence for this relationship is based primarily on morphological characters, and it would be interesting to have a detailed behavioural and ecological study of the New Zealand Scaup to provide further evidence. Certain evidence on the phylogenetical relationships of *Aythya* species has been discussed previously by Harrison & Harrison (1960a & b, 1961, 1962) and Sage (1955, 1962). It is interesting to note that in the hybrid a number of Tufted Duck characters have gained expression, and overall the morphology is closer to this species than to the New Zealand Scaup.

It is interesting to theorise on the origin of the New Zealand Scaup. There is a certain amount of fossil evidence which allows an approximate date for the origin of *Aythya* as a genus to be given. The indications are that Anseriformes had its origin and early development on the continent of Europe and began to spread elsewhere about the middle of the Tertiary Period, about 25,000,000 years ago in the Miocene. Howard (1950) states that true ducks and swans of modern subfamilies first appeared in the Oligocene of Europe, *i.e.* about 40,000,000 years ago, and that some of the former have been referred to the genus *Aythya*. The fact that many of the modern species of this genus had evolved by the Pleistocene is proved by the existence of fossil remains of the Redhead *Aythya americana* (Eyton), Canvas-back *Aythya valisineria* (Wilson), and Lesser Scaup *Aythya affinis* (Eyton) in Pleistocene strata in North America. It is interesting to note that the Ring-necked Duck *Aythya collaris* (Donovan), a species that is also closely related to the Tufted Duck and Scaups and whose present range is largely sympatric with that of the Lesser Scaup, is represented by fossil remains in the Lower Pliocene of Nevada. It seems reasonable, therefore, to postulate that the Ring-necked or Collared Duck is of greater antiquity than the Lesser Scaup, and that its early ancestor reached North America from Eurasia at an early stage and developed specifically before the onset of the ice age.

The means by which the New Zealand Scaup or the ancestor thereof reached New Zealand, and when it did so, are matters for speculation. Two possible solutions are available, namely direct immigration from the northern hemisphere, or colonisation via Australia. According to Fleming (1962) five of the endemic New Zealand species of overseas genera are possibly of Holarctic (north temperate) origin, and in this category are included the New Zealand Scaup and the now extinct Auckland Island Merganser *Mergus australis* Hombron and Jacquinot. There is no doubt at all that a considerable percentage of the New Zealand avifauna is derived from Australia. The New Zealand Brown Teal *Anas aucklandia chlorotis* Gray for example is clearly related to the Chestnut Teal *Anas castanea* (Eyton) of Australia. Examples of recent colonisations from this

source are the Grey Teal *Anas gibberifrons gracilis* Buller which arrived in the last century, and the Australian White-eye *Aythya australis australis* (Eyton) which arrived at the same period but failed to persist. The New Zealand Scaup is now a long way removed geographically from its nearest relatives, and the fact that there is no close relative in Australia or the intervening tropics does not necessarily mean that one did not exist in those regions in the past. There are precedents for this in other faunal groups: three frogs of the family Leiopelmidæ are at present found in New Zealand but the family no longer exists in Australia or the Orient as it did in the past, but is represented in North America. For an explanation of this phenomenon one has only to look to the climatic changes that occurred in the Pleistocene and later. Australia is currently in an arid phase which, the evidence suggests, commenced with marked aridity in the early Recent. There is ample fossil evidence of a quite diverse aquatic fauna which existed in Australia prior to this phase. Similar remarks apply also to New Zealand where the fossil record contains enough evidence to justify the theory that there existed a period in which waterfowl and grassland birds flourished and then died out, probably as a result of drought conditions (see Falla 1953). In view of the very distinct specific status of the New Zealand Scaup it seems probable that it reached New Zealand quite early, possibly the early Pleistocene or even considerably before, and survived the glacial and subsequent climatic fluctuations in suitable refuges. If this is in fact the case, then the evolutionary history of the New Zealand Scaup and the Ring-necked Duck seem to have much in common, for the latter must also have survived the glaciation of North America. Possibly both species reached their present geographical areas in the early phases of dispersal from continental Europe in the Tertiary.

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I am very grateful to Mr. John Hall of Ixworth, Suffolk, for kindly presenting me with the hybrid that forms the subject of this paper. Dr. G. V. T. Matthews of the Wildfowl Trust arranged the loan of a male New Zealand Scaup which was essential for comparative purposes. Finally, I have to thank Dr. C. A. Fleming for sending me separates of various papers.

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Authors introducing a new name or describing a new species or race should indicate this in their title and display the name prominently in the text followed by *nom. nov.*, *sp. nov.*, *subsp. nov.* as appropriate. In these descriptions, the first introduction of the name should be followed by paragraphs for "Description", "Distribution", "Type", "Measurements of Type", "Material examined" and further sub-headings as required.

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DINNERS AND MEETINGS FOR 1964

17th November, 15th December.

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IN

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The six hundred and twentieth meeting of the Club was held at the Rembrandt Hotel, London, on 17th November, 1964.

Chairman: The Right Hon. the Lord Hurcomb

Members present 28; Guests 5.

Mr. R. E. Moreau spoke on birds of Australia and Tasmania seen by him on a recent visit to these countries, illustrating his talk with coloured slides, several of which were kindly lent by Messrs. M. G. Ridpath and Graham Pizzey.

A summary, so far as it concerns the Australian continent, will be published in the *Bulletin*.

A paper on the avifauna of Tasmania by M. G. Ridpath *et al.* has been accepted for publication in *Ibis*.

On birds new for New Guinea or with a larger range than previously known

by A. HOogerWERF

(continued from page 148—November 1964)

43. *Macropygia amboinensis* (Bonaparte). Long-tailed Cuckoo-Dove

For none of the eight subspecies of this dove mentioned in Mayr's list the area between the Maro and Bian Rivers is indicated as part of their range, but the species is of regular appearance in that area. They could be seen and secured in well-forested parts of the Paal Putih region along the mouth of the Maro River as well as in heavy mixed forest covering the banks of the Kumbe River up to 50 or 60 miles inland; also in thin *Eucalyptus-Melaleuca* forest around Kurik and in the Gali Ephata area and in narrow edges of mangrove jungle along small rivulets debouching into the Arafura Sea.

After we got acquainted with the peculiar call of this bird, (showing some similarity to representatives of the genus living on Java) it became evident how common it really is in the area discussed here and that these birds do not even avoid the immediate neighbourhood of human buildings.

Individuals secured in May, June and August had poorly developed reproductive organs, but three shot in September had those organs well developed (♀♀ ova of 2-3 and ♂ testicles of 3 x 8 mm).

Though Mayr's list mentions as the range of *Macropygia nigrirostris* "All New Guinea, in lowland and hill forest up to 1,450 m.", it was not

before my stay at Manokwari that I set eyes on the first of this smaller species, which I never saw in southern New Guinea. At Manokwari and surroundings *M. amboinensis* could be seen as well without enabling me to find out clear differences in habitat.

44. *Charmosyna placensis* (Temm.) Yellow-cheeked Parrakeet or Lorikeet

This lorikeet was known only from the Oriomo and Fly Rivers so far as it concerns south New Guinea. This range can be extended to the area between the Maro and Bian Rivers where six specimens were secured from the thin *Eucalyptus-Melaleuca* forest surrounding Kurik's ricefields and the Gali Ephata swamp and from high trees in the immediate neighbourhood of Kurik's Estate Yard. The species was also at Agatz (Mappi Region) about 240 miles north-west of Kurik where it could be observed daily in the afternoon (April, 1960) visiting a termite nest high up in a tree of the mangrove association.

Females obtained on 19th March and 21st June showed small gonads as was the case with a male shot on 2nd September but a second male from that same date had the reproductive organs well developed: testicles 2 x 4 mm, whereas males obtained on 21st June and 31st August had medium-sized gonads.

Trichoglossus haematod and this *Charmosyna* are the most common of the Psittacidae within the area dealt with in this paper, where also *Opopsitta gulielmi* III, *Probosciger aterrimus*, *Kakatoe galerita*, *Lorius roratus* and periodically *Aprosmictus erythropterus* and *Kakatoe tenuirostris* are to be seen, though the usually quickly moving *C. placensis* and *Opopsitta gulielmi* III are more difficult to observe and to identify because of their small size and preference for thick cover in the tops of high trees.

45. *Kakatoe tenuirostris sanguinea* (Gould*) Little Corella

This small white cockatoo is not included in Mayr's list but van Bemmél² mentions it for south New Guinea on account of some specimens which reached the Netherlands as cage birds about 1958. from Mr. R. Kooper, at that time Navy surgeon at Biak. The occurrence of the species near Merauke was based on a communication from this gentleman "that the birds were caught without doubt at Merauke" which in my opinion is a rather weak argument.

Though van Bemmél does not exclude the possibility that the species settled near Merauke after having crossed the Torres Strait he thinks it more probable that it could have been introduced by man.

My experience, however, points to the probability that the settlement in New Guinea of this Corella, as the Australians call the bird, is not of recent date. The erratic occurrence of these birds may be one of the main reasons of late discovery; also the fact that the species, when observed at a distance can be confused with the Yellow-crested Cockatoo, *K. galerita*.

Though during certain periods the Corella is of daily appearance in and around Kurik's ricefields, occurring periodically in large flocks, sometimes it seems absent as is evident from my diary notes which do not mention the bird during March, April, November and December! Though the presence of this rice consuming cockatoo may be influenced, of course, by

* In considering *sanguinea* a subspecies of *tenuirostris* I follow G. F. Mees: An annotated catalogue of a collection of bird-skins from West-Pilbara, Western Australia; *Journal of the Royal Society of Western Australia*, 44, part 4, p. 102/3.

the availability of food, its absence during that period cannot be caused by that because attractive rice was often there in those months.

At Kurik the species seems to prefer the crop shortly before the harvest, but we observed repeatedly that freshly sown grains were dug up and consumed at once. It was on such a field that, on 19th January, 1960, the maximum number of 384 was counted. Shortly before that, on 8th January, about 200 were seen, feeding on a ripening crop. On 18th June, 1962, there were about 80 looking for grains spilled during the mechanical harvesting but usually the number seen by me varied from a few to about 35, often mixed with the larger Yellow-crested Cockatoo from which it is distinguishable because of its smaller size, crest and different call.

Though we observed this species principally in or around the ricefields where lots were shot and examined by me, in October, 1960, many specimens—on 19th October, about 200—were found along the Kumbe River feeding on seed-bearing plants. On that occasion they were with large numbers of the Red-winged Parrot, *Aprosmictus erythropterus*.

The many birds examined by me proved to have poorly developed gonads which makes it evident that the Little Corella only visits the surroundings of Kurik outside the breeding season so perhaps it should be looked upon as a migrant or straggler from Australia.

46. *Dacelo tyro* Gray

Large Jungle Kingfisher

The subspecies *tyro* is only known from the Aru Islands and *archboldi* from "Southern New Guinea between the Morehead and the Wassi Kussa Rivers". This last range is too small to be realistic which is proved by the fact that in December and January, 1936–7 more than 20 specimens were secured from the Middle Fly River district as was published after the appearance of Mayr's list (Rand¹⁵). In view of this, the occurrence of the species in the more western region between the Maro and Bian Rivers seems logical. It is a rather common bird at Kurik and surroundings and far upstream on the Kumbe River: it could also be observed on the small well forested island Pulau Habé between Merauke and the Frederik Hendrik Island where it was one of the most common residents and three specimens were secured (October, 1959).

In many places known to me the species frequents the same habitat as the larger *Dacelo leachii*, which however is less numerous and apparently does not prefer large complexes of forest and shrubbery as does *tyro* which gives the impression of being a real forest bird, rather like *Dacelo gaudichaud*.

47. *Halcyon nigrocyanea* Wallace

Black Kingfisher

As the range of the subspecies *nigrocyanea* Mayr states: "western New Guinea eastward to the head of Geelvink Bay and on the south coast to Princess Marianne Strait" and for the race *strictolaema* "from the Fly River to Mount Cameron, southeastern New Guinea". From the Fly River area the species was recorded anew in October, 1936, when three males were secured according to Rand¹⁵.

From this it is evident that the species was not as yet known from the area between Princess Marianne Strait and the Fly River so that the bird we observed and secured on 29th September, 1960—which is the only specimen ever seen by me!—is the first known from that particular area. This bird was observed in the thin *Eucalyptus* forest along the Gali

Ephata irrigation tank, where it could be closely approached, behaving as is typical for most members of the family.

48. *Merops philippinus* (Meyer) Brown-breasted Bee-eater

So far as it concerns south New Guinea this bee-eater was known only from Princess Marianne Strait, but after the edition of Mayr's list it is also mentioned for Lake Daviumba, Middle Fly River (Rand¹⁵). However, there is no doubt that the range of this beautiful bird is much more extensive because it was found in nearly all areas visited by me and often proved to be rather common. At Kurik and far surroundings it was common and also breeding; it was found by me in the ricefields and nearby savannahs as well as in the extensive grass wildernesses between the Kumbe and Bian Rivers and besides we often met with it along the beach.

Larger concentrations were observed on 31st March, 1961 (North polder), 3rd June ("large flocks, once about 50," North polder) and young birds hardly able to fly were seen on 15th May, 1962. Large, well feathered young (two) were taken from a nest hole at the Estate's yard quite close to buildings on 26th November, 1960. Many (15-20) birds scratching nest holes in the lawns around the staff houses were observed in September, 1962; at that time every day a number of birds could be seen sitting on the electricity wires in front of my house.

During my visit to the Frederik Hendrik Island in May, 1960, this bee-eater was observed nearly every day.

49. *Rhyticeros plicatus* (Blyth) Wreathed Hornbill

According to Mayr the range of the subspecies *ruficollis* should cover western and southern New Guinea, eastward to the Head of Geelvink Bay and to the Noord River, whereas the range of the race *jungei* should include east New Guinea, westward at least to the Mamberano River in the north and the Fly River in the south. Therefore the species was unknown from the area between the Noord and Fly Rivers, including the territory of our observations. However, this hornbill could be observed regularly in the area of Kurik and it is rather a common bird along the Kumbe River in well-forested regions. On 26th December, 1960, there were six near the mouth of this river; on 1st May, 1962, at least ten in the rather heavy mixed forest east of the South polder and on 15th June perhaps as many; on 18th April, 1961, five were seen in the same forest and on 5th and 24th April, 1962, there were three or four flying across that polder. On 1st June, 1962, a specimen was secured in heavy forest bordering the mouth of the Kumbe River.

But perhaps during certain periods these birds are absent from Kurik's surroundings because of the scarcity of suitable jungle trees for nesting which compels the birds to look for heavier forest which is available up the Kumbe River. Besides the availability of suitable nesting trees the presence of the species may depend on the quantity of suitable food (principally forest fruits).

50. *Motacilla flava* Linn. Yellow Wagtail

From our experience with this wagtail, too, it became evident that the range is much more extensive than stated by Mayr who mentions it only for the "Mimika River, at the foot of the Nassau Mountains".

During February till April, 1960, January till April, 1961, and March and April, 1962, it proved to be a regular visitor to the ricefields of Kurik

and surroundings and also at Paal Putih along the mouth of the Maro River, it was seen on several occasions. On 7th October, 1962, two were seen on a mudbank along tidal forest at Sorong and in October and November of that year and in February, 1963, representatives were of fairly regular appearance at Manokwari and surroundings, whereas I saw almost daily one or more in the Kebar Valley (Vogelkop, about 500 m. above sea level) when I visited this area in October, 1962.

In all these cases there was no doubt about the identity and on 5th, 6th and 21st April, 1962, seven specimens were secured.

Usually one or two were seen at the same time, but on 27th February, 1960, five or six, on 27th March, 1962, about 20, on 6th April ten and on 18th April of that same year five were seen together. I did not note later observations than on 22nd April (1960) and 24th (1962). On 26th and 27th March and on five different occasions during April, 1962, very beautiful birds were seen, showing far advanced spring plumage.

Contrary to *Motacilla cinerea* which prefers, when in its winter quarters, dry ground, stony river-beds or stony paths, the present species shows preference for a muddy territory as is available in inundated ricefields but at Manokwari and at the Kebar Valley it was also met with on rather dry native gardens and along the water where we found *Tringa ochropus*, *Tringa glareola* and *Pluvialis dominica*.

51. *Megalurus timoriensis* (Wallace)

Marshbird

None of the six subspecies mentioned in Mayr's list is known from the area discussed in this paper though *muscalis* was found along the Middle Fly River only about 100 miles north-east of Merauke.

Though the species was never found in Kurik's ricefields it could be regularly discovered within the surrounding seasonal marshes, provided the vegetation, which must consist of high grasses or of grass-like plants, offers the birds enough cover.

This *Megalurus* was rather common in the seasonal marshes north of the North polder, for the greater part grown with the reed-like *Ischaemum barbatum* sparsely covered with shrubs and small groups of higher trees. It was also regularly in the Paal Putih plains showing exactly the same character as many of the savannahs bordering the beach between the Kumbe and Bian Rivers. On some rare occasions I saw it on Frederik Hendrik Island and in the freshwater swamps around Kepi, 175 miles north-west of Kurik, but in both these areas it was much less common than the Red-headed Fantail Warbler (*Cisticola exilis*) which was met with every day in those rather deep freshwater marshes.

Three specimens secured on 1st and 3rd July showed well developed gonads as did a female obtained on 5th August. Another female bagged on 3rd July had the ovary poorly developed.

In behaviour the species shows some resemblance to the much smaller *Cisticola exilis* with which it shared the habitat. As a rule the birds are alone or in pairs and stick almost exclusively to a grassy vegetation with a height between 50 and 100 cm, often but certainly not always, growing on a moist soil or in shallow water.

52. *Cisticola exilis* (Vig. & Horsf.)

Red-headed Fantail Warbler

The situation with this warbler is about the same as indicated for *Excalfactoria chinensis* (no. 17) which, in the dry season, is confined to a

rather similar habitat, for the range as given by Mayr does not agree with my experience, nor is the situation in our area similar to the one as pictured by Mayr and Rand¹² who called the species surprisingly scarce in south-east New Guinea. *Cisticola exilis* was found in almost any suitable territory visited by me in south New Guinea and most other places. Beyond the localities mentioned when discussing *Excalfactoria* I saw the species near Kepi (Mappi district) and on the Frederik Hendrik Island and nowhere could this warbler be considered rare. In the Kebar Valley it was probably more plentiful than found by me elsewhere including Indonesia. On 19th October, 1962, more than 60 were counted during a walk of about an hour around the Kebar airstrip amidst the grassy plains of some square miles of that valley. This tiny bird was also observed and secured in the lalang plains west of Ransiki (Geelvink Bay) though there it was by no means so plentiful as at Kebar.

At Kurik it was also present in the ricefields when the crop had reached an attractive height, this in contradistinction to our experience on Java where we only found *Cisticola juncidis* in such ricefields but never the present species which preferred areas covered with lalang or such like vegetation.

In south New Guinea courtship flights were observed in February, and in March a freshly built nest was found in Kurik's ricefields; on 30th May a bird carrying nest material was seen on Frederik Hendrik Island.

53. *Artamus cinereus* Vieillot

Black-faced Wood-Swallow

Mayr's list mentions the species for Princess Marianne Strait only, so far as New Guinea is concerned.

Though this dark wood-swallow was observed and secured by me in Kurik's ricefields in July, 1960, and March, 1961, and in October, 1960, also up the Kumbe River, the number of observations remained restricted to five, all in the months mentioned above and more than three individuals at a time were never seen. All observed birds stayed on dry, open fields preying on insects just above, sometimes even upon the ground, behaving rather like *Coracina novaehollandiae*, making both these species rather conspicuous in the open areas they frequent. Owing to this behaviour I do not think it probable that this wood-swallow was often overlooked which makes it reasonable to suppose that it is rather a rare visitor to the part of New Guinea discussed here.

The observed birds were perhaps migrants or stragglers from North Australia where I found the species locally very common.

54. *Chlamydera cerviniventris* Gould

Fawn-breasted Bower Bird

The few particulars available to Mayr when composing his list of New Guinea birds formed the reason that also in this case the recorded range "eastern New Guinea westward in the south to the Oriomo River, in the north as far as Humboldt Bay and the Sentani Lake, supposedly also Sudest Island" does not agree with the real situation. Later it also became known from the Fly River area where specimens were found in breeding condition in September, and a nestling in December (Rand¹⁵).

I found it regularly, sometimes even plentiful, in south New Guinea but also near Ransiki (Geelvink Bay) and in the Kebar Valley (Vogelkop, 500 m. above sea level).

Though this uniformly coloured bowerbird may be considered common

during certain months at Kurik and surroundings, there were long periods during which I failed to see even a single specimen. During January and August I cannot find any observations in my notes about its occurrence and observations during March, May and December were scarce. But in July, September, October and November it was common and encounters with small flocks, sometimes mixed with certain other species, were not very rare.

The habitat description given by Mayr "grasslands up to 500 m., occasionally up to 1,400 m." does not quite agree with my experience because I have known these birds as inhabitants of light forest, not appearing in grass wildernesses or a similar habitat when lacking the necessary plots of shrubs or low trees, which are a *conditio sine qua non*. I never saw them amidst large complexes of heavy forest.

At Kurik I not only observed this often noisy species in shrubs and trees surrounding the ricefields but also in such vegetation far from them and periodically numerous in the light *Eucalyptus-Melaleuca* forest of the Gali Ephata area and at many places along the Kumbe River as far as 15 or 20 miles upstream (e.g. in October, 1960). I also found specimens in mixed tidal forest along small rivulets not far from the coast of the Arafura Sea.

Though I failed to see this bowerbird during the period (October, 1962 till April, 1963) I stayed at Manokwari, I had no difficulty in finding it near Ransiki along Geelvink Bay (March, 1963) about 40 miles south of Manokwari, where some were met with in groups of low trees growing in an extensive plain covered with a low vegetation principally of lalang grass and *Lantana* sp. In October, 1962, it was numerous in an area of light, perhaps secondary forest which covered the slopes of a low hill along the Kebar Valley but—strangely enough—no specimens were seen beyond that particular area!

Because the gonads of the secured birds were small and I did not observe bowers or any indication of courtship or of paired birds, I think it reasonable to consider the species as a straggler from other parts of New Guinea or even from Northern Australia, so far as it concerns the southern part of west New Guinea.

55. *Ailuroedus crassirostris* (= *melanotis*) (Gray) Green Catbird

Of the eight subspecies of this bowerbird of which at the least five should occur at higher altitudes only, not a single one was known from the part of New Guinea discussed here, but the subspecies *melanotis* is said to occur on the Aru Islands and in southern New Guinea along the Oriomo and Fly Rivers.

Perhaps the species is not at all rare within the area between the Maro and Bian Rivers, but we did not arrive at this conclusion until after—in October, 1960—we discovered it as the source of a series of mewing and hissing notes. These notes are so typical, though not very arresting, that they are difficult to forget. On account of this "acte de présence" it was possible to observe the species in rather heavy mixed forest east of the South polder and in well forested areas far up the Kumbe River; also within the rather thin *Eucalyptus-Melaleuca* forest of the Gali Ephata region. In such a forest usually the thickest foliage of medium-sized trees is chosen where it is often extremely difficult to discover, even after attention has been called to its presence by these remarkable notes.

In most cases the birds we observed were alone or in pairs and two

secured in April and October, both males, showed poorly developed reproductive organs.

56. *Philemon novaeguineae* (Müller) Papuan Friar-bird

Of the six races of the species known until now, none is recorded for the part of south New Guinea discussed here, but the subspecies *brevipennis* is mentioned in Mayr's list for "southwestern New Guinea between Mimika and Eilanden Rivers".

However, this *Philemon* is of such common and conspicuous appearance everywhere between the Maro and Bian Rivers and several hundreds of miles north-west of this area that we may wonder that it is still not known from Merauke's surroundings up to the Eilanden River, from whence so many species are already recorded as is evident from Mayr's list.

In my opinion this friar-bird may be considered without doubt among the ten most striking species of the part of New Guinea discussed here and I suppose this to be so in many other regions as it certainly is within the territory between Merauke and the Eilanden River including Frederik Hendrik Island. This applies also to Manokwari and surroundings and many other localities along the Geelvink Bay (Vogelkop). At places where the species occurs it is always in the first place the loud hubbub betraying its presence, which is so ubiquitous that it often proved to be almost impossible to fix the call of any bird on my band-recorder without its being mixed up with the loud, monotonous clamour of this friar-bird within an astonishing diversity of habitats!

The species gave us the impression of being very indifferent to its habitat but usually the interior of heavy and closed forest is avoided as are extensive plains devoid of higher vegetation, though encounters even in such places do occur. The birds are seldom alone and calling individuals are often surrounded by 10-20 others of the same species, causing a tremendous racket.

A female secured in April had well developed gonads but a second one killed in August showed an ovary not granular. On Frederik Hendrik Island on 13th May, 1960, was a nest containing three young nearly ready to fly; the nest was built in the crown of a beautiful mango tree in the central part of the island's capital Kimaam.

57. *Neochmia evangelinae* D'Albertis and Salvadori

Long-tailed Crimson Finch

This species too was observed in nearly all suitable localities which I visited in south New Guinea, not only between the Maro and Bian Rivers, but also on Frederik Hendrik Island (May, 1960) and in the Mappi region (e.g. along the Obaä River) about 175 miles north-west of Kurik. Though the birds could usually be observed in high grasslike vegetation, preferably amidst or in the neighbourhood of marshes or rivers, they also appeared on a standing crop in Kurik's ricefields together with *Lonchura nevermanni* and *L. stygia* (in May and December, 1959).

According to my experience the species lives in small flocks or (family?) groups sometimes together with both other species just mentioned. Nervous and apparently paired birds were met with in June, 1961, and individuals in full nuptial dress on 21st September, 18th October and 30th November, 1960. Of nineteen birds killed in Kurik's ricefields between 18th and 22nd December, 1959, the gonads were poorly developed; during

that time they were rather plentiful there, always with large flocks of *Lonchura nevermanni* and sometimes with *L. stygia*.

Van den Assem¹ saw many apparently semi-adult birds at Merauke in September, 1957, and individuals with nesting material in March, 1958 (Frederik Hendrik Island) and in April (Merauke).

In view of my observations, the range as indicated in Mayr's list "south New Guinea on the Fly River and Oriomo River (Dogwa)", must be extended.

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A new subspecies of *Spreo albicapillus* (Blyth) from Kenya

by STUART KEITH

Received 7th August, 1964

Spreo albicapillus, described by Blyth from the Warsangeli district of British Somaliland, is one of the least known members of this genus of starlings. Archer and Godman (1961) give its range as "from the coast of the Gulf of Aden south through the Haud to the Webbe Shebeli and east to the Mijjertein country." In other words, the range includes British Somaliland (for convenience I use the old political terms), extreme eastern Ethiopia and extreme northern Italian Somaliland. There is also, however, another population, not mentioned by Archer and Godman, discovered by Benson (1946) in the highlands of southern Ethiopia at Yavello. This is about 400 miles west of the nearest part of the range given by Archer and Godman.

In 1962 I discovered a small population of this bird at North Horr, northern Kenya, from which I collected two birds. These differ markedly in size from the Somaliland birds (see photo), there being no overlap in measurements between them and a series of 15 skins examined at the American Museum of Natural History in New York. I therefore propose to name my birds

Spreo albicapillus horrensis, subsp. nov.

Type: American Museum of Natural History No. 766689; adult male; North Horr, north west Kenya; 1st November 1962; Stuart Keith, collector.

Measurements of type: Wing 137; tail 93; tarsus 33; total culmen 24 mm.

Description: Smaller than the nominate race. 15 skins in the A.M.N.H. collection were examined, 13 from British Somaliland, one from eastern Ethiopia, and one a captive bird with no locality. These skins have the following measurements:—Wing 144–161, average 154.5; tail 107–122, average 114.6. My two birds from North Horr measure: wing 130–137, average 134; tail 89–93, average 91. In addition, I examined the eight skins in the British Museum's collection taken by Benson at Yavello, southern Ethiopia. These tend to be a little smaller than the Somali birds, especially in the tail, (the 8 birds measured: wing, 143–159, average 152; tail, 99–113, average 106). However, as can be seen, these measurements overlap with those of the Somali birds, but do not overlap with those of my birds. Furthermore, these Yavello specimens are the same dark colour below as specimens from Somaliland (see below under "remarks" for a note on colour).

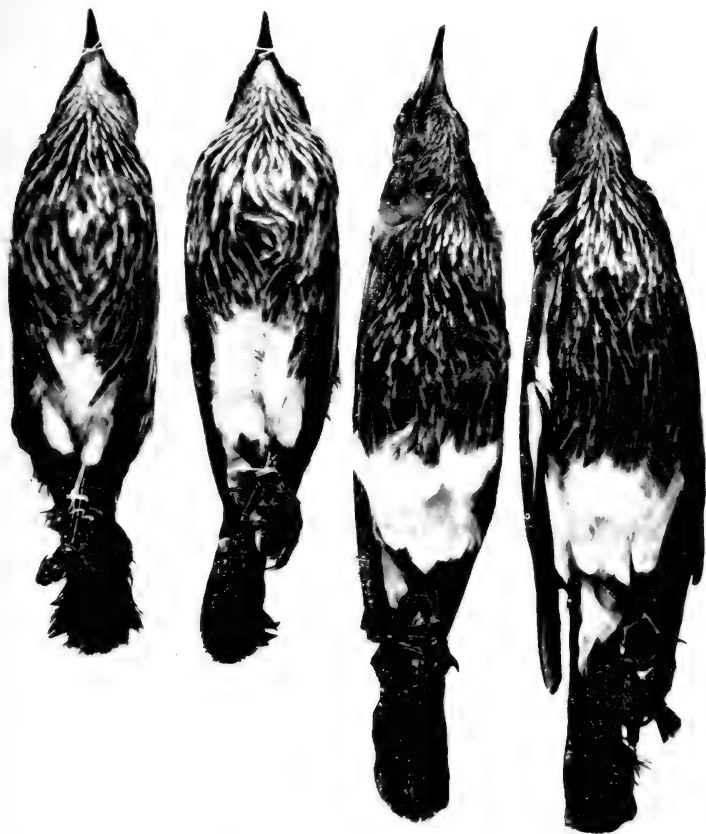
Distribution: At present only known from the type locality, but this region of extreme northern Kenya near the Ethiopian border is virtually unexplored ornithologically. There is a recent sight record (1963, Leslie Brown, pers. comm.) of *Spreo albicapillus* subsp. from the Dida Galgalla desert north of Marsabit, Kenya, about 100 miles to the east of North Horr.

Remarks: There is a good deal of individual variation in colour among the series of A.M.N.H. skins, particularly in regard to the amount of blue and green gloss on the back and tail. My two birds from Kenya are rather paler below than the A.M.N.H. birds (see photo), but apart from this can hardly be separated on grounds of colour.

One of the Kenya birds is a young bird, with the basal half of the lower mandible yellow instead of black (on left in photo). I have therefore

included in the photograph, for comparison, a young bird, with the same bill colouring, from Somaliland, (second from right).

Habitat: In British Somaliland, *Spreo albicapillus* is found at all levels, from the coast right up to the mountains in the interior. In southern Ethiopia, Benson (*loc. cit.*) found it at 4000–4500 ft., in “park-like acacia



country”. North Horr, 1300 ft., is in hot, sandy desert country, with a few scattered palms and thorn trees. The birds were quite tame, living right in around the tiny settlement. I estimated their numbers at between twenty and thirty.

My thanks are due to Mr. Peter Walters, Provincial Commissioner, Northern Frontier Province, for allowing me to enter his Province at a time of year when it was closed; and to Mr. David Dale, District Commissioner, Marsabit, who not only allowed me to collect freely within his District, but also personally accompanied me to North Horr.

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Contact behaviour in the Cuban Finch, *Tiaris canora* (Gmelin)

by JOHN H. SPARKS

Received 23rd February, 1964

The adults of the many avian species avoid sitting in contact with other conspecifics; this avoidance is maintained by aggression, and leads to the formation of individual distances. Some species do not show this kind of dispersion, and as the members of a flock are preparing to rest, they come



Plate I

Allopreening in the Cuban Finch showing the ruffling of the head feathers in the allopreening invitation posture of the male.

together and sit flank to flank (clumping); this diurnal clumping may be seen in some tropical species chiefly the Psittacidae, Timaliinae, and Estrildidae. A bird which is clumping may spend some of the time in preening its neighbour (allopreening, Cullen, 1963) and I intend to refer to this complex of clumping and allopreening behaviour as "contact" behaviour.

The four species of grassquit (*Tiaris* sp.) range from northern South America, Central America to Mexico and through the West Indies. They are placed in the sub-family Fringillinae, and since the palato-maxillaries are unfused or incompletely fused, Tordoff (1954) considered them to be rather primitive; they may be closely related to the genus *Melanospiza*. All the grassquits have typical fringillid behaviour patterns, such as wing quivering in the hen's soliciting behaviour and all show courtship feeding (Goodwin, R., 1959). However, in many ways they resemble the Old World estrildids; the grassquits have a general waxbill-like comportment and the nest is domed: the latter feature may be an adaptation to a tropical habitat. The similarity to the members of the Estrildidae is also accentuated

in the Cuban Finch (*T. canora*) in that this species clumps and allopreens. The Fringillidae is an assemblage of typical "distance" species, so this makes the Cuban Finch a particularly interesting one to study since it must have evolved contact behaviour quite independently of the Estrilidae. A comparative study was thus made of the contact behaviour of *canora* and of the Red Avadavat, *Amandava amandava* (Estrilidae) in order to determine how far the behaviour of the former had converged with that of the waxbills. Observations were made on a pair of Cuban Finches which were kept in a large aviary with up to six pairs of Red Avadavats.

DESCRIPTION OF THE BEHAVIOUR

Clumping formed a distinct part of the activity cycle of the Cuban Finches; periods of foraging and flying from branch to branch alternated

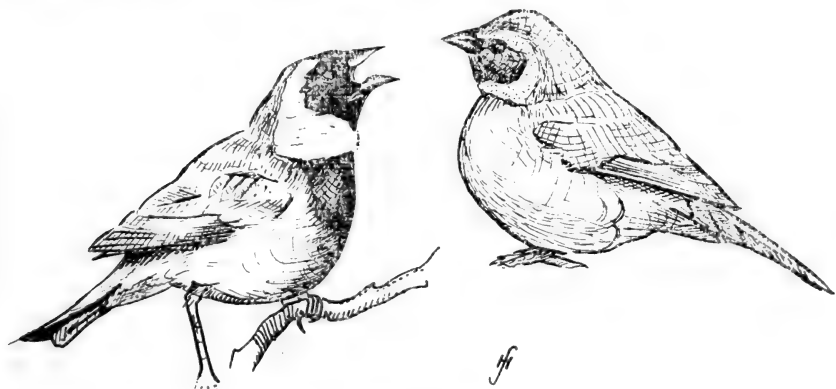


Figure 1
Bill gaping in the male Cuban Finch, followed by head ruffling.

with clumping, and bouts of sitting in contact of up to twenty minutes were recorded. The finches were never seen to clump with the avadavats but in an aviary in the London Zoological Gardens, a cock *canora* regularly used to clump with a cock Red-cheeked Cordon-bleu (*Uraeginthus bengalus*). Both cock and hen Cuban Finches kept in communication with each other by a series of wheezy "seeps", but these were rarely uttered while they were clumping. Many of the allopreening bouts took place at the beginning of a period of clumping and after a few minutes, both birds would sit quietly with the eyes partly closed and the head feathers slightly raised, as in the avadavats. Very often, one of the clumping finches would hop smartly away from its mate, only to return immediately to the other flank of its clumping partner. These "change rounds" would sometimes go on for ten or more seconds, and it gave the impression that the birds were trying to get into a comfortable position.

The allopreening behaviour of the Red Avadavat normally consists of the preener drawing the head feathers in turn through the gently mandibulating bill; occasionally the bout is preceded by a peck, or else the allopreening can be definitely called aggressive (Goodwin, D., 1960; Sparks, 1962, 1964 a & b). In the Cuban Finch, most of the allopreening

bouts were noticeably different from that described above; they consisted of a series of stabs delivered sometimes with a partly opened bill to the head of the recipient; the stabs appeared to be "inhibited" at the last moment, and after a number had been delivered, the typical, although rather rough, feather grasping action of preening could be observed; on other occasions little or no overt aggression could be detected. Table 1 compares the number of allopreening bouts which were preceded by hostile behaviour and those in which no aggression could be detected, for the finches and for the avadavats; aggression was far more evident in the former species.

TABLE 1

An analysis of the contexts in which allopreening takes place in *T. canora* and *A. amandava*. The results were obtained from 1 pair of *canora* over 3 hours observation, and from 3 pairs of *amandava* over 6 hours observation.

	Allopreening preceded by aggression.	Allopreening preceded or followed both by the act or autopreening.	Allopreening not preceded by aggression or autopreening.	Allopreening in response to clumping.	Total
<i>T. canora</i>	28	4	30	8	70
% of Total	40%	6%	43%	11%	
<i>A. amandava</i>	13	100	47	35	195
% of total	7%	49%	26%	18%	

The percentages are expressed to the nearest 1%.

On several occasions, the cock finch was seen to pull out some ear-covert feathers of the hen; plucking was rarely observed in the avadavats.

For a month or two after the birds were obtained, one would zig-zag up to the other, stopping short, and then lean forward and preen the other's head region, so that the two birds were a centimetre or two apart. This has been called "distance" allopreening and it is more typical of allopreening encounters in the Corvidae. One week after the finches had been liberated into the aviary, the number of contact and distance allopreening bouts was noted synchronously for this species and for the avadavats. (Table 2.)

TABLE 2

The number of distance and contact allopreening bouts in *T. canora* and *A. amandava* over 6 hours observation.

	Contact allopreening bouts.	Distance allopreening bouts.	Total
<i>T. canora</i>	37	24	61
% of total	60%	40%	
<i>A. amandava</i>	117	10	127
% of total	93%	7%	

The percentages are expressed to the nearest 1%.

Six months later, the percentage of distance allopreening bouts for the finches had dropped to about that recorded for the avadavats. The initially high level may have been due to the aggressiveness of the birds which tended to make them avoid clumping, and which later waned slightly. However, this phenomenon was not recorded for avadavats.

As in the avadavat, the feathers which are allopreened are chiefly restricted to the head, but occasionally those of the mantle, flanks and upper breast may receive some attention. If one of the finches starts to preen the other's wing-coverts it often elicits a hostile response.

An allopreening bout may last up to two or three minutes in the avadavat although the average duration is about 15 seconds; this is much longer than the majority of the allopreening bouts observed for the finches, which tend to last only two or three seconds.

Perhaps the most interesting part of the social behaviour of the Cuban Finch is its allopreening invitation behaviour. The term "allopreening invitation" is useful in describing the behaviour below with the exception of bill gaping, since it tends to be temporarily associated with a neighbour starting to allopreen; by using this term, it is not intended to imply that the "inviting" bird is always attempting to incite this behaviour in another bird. The factors eliciting allopreening behaviour in the Red Avadavat are rather complex (Sparks, 1964 a).

In its simplest form, the allopreening invitation behaviour of the finches resembled that of the avadavats in that the only head plumage was ruffled (Plate 1). This behaviour may be given when two birds come together or in response to being attacked or allopreened by the clumping partner. The avadavat tends to assume a horizontal, bill down posture when it approaches its clumping partner, besides raising the head feathers. On other occasions when the finches came together in order to clump, the cock turned his head towards the hen and, with the head feathers sleeked, opened his bill thus showing off the bright pink buccal cavity (Figure 1). This behaviour would be followed by allopreening invitation behaviour in that there would be a full ruffling of the head plumage and an outburst of allopreening by the hen. In Olive Finches (*T. olivacea*), bill gaping is an aggressive component, and it is usually combined with a head forward threat; this tends to be followed by bill fencing and the subsequent flight of the least aggressively motivated individual. In *canora*, bill fencing often led into allopreening behaviour but sometimes the hen would interlock her bill with the cock's as in courtship feeding; bill touching was not preceded by regurgitation movements although on several occasions the cock had a seed between his mandibles after the hen had disengaged her bill.

The most interesting component of the allopreening invitation behaviour observed in the finches was wing vibration. These wing movements were given in response to the mate approaching in order to clump; the sitting bird would suddenly assume an upright body posture with the neck stretched upwards and the head plumage erected; the wings would be vibrated in a dorso-lateral plane away from the body. This particular display, which was usually performed by the cock, was observed many times and it usually was concluded by the approaching bird starting to allopreen the actor.

Avadavats do not show wing quivering but when they are "attempting" to induce a neighbour to allopreen, an avadavat may resort to butting with the forehead (Sparks, 1964 a & b), and while it is inviting allopreening by the normal, relaxed posture with the head feathers ruffled, it may often mandibulate the bill at a frequency of about 10/second (Sparks, *loc. cit.*).

A Cuban Finch which is sitting flank to flank with its clumping partner, may respond in a number of ways to being allopreened. It usually fully ruffles the head feathers and it may withdraw the neck and close its eyes. However, vertical neck stretching with the eyes opened and the head plumage ruffled was a common response in the finches but rare in the

avadavats. Both species occasionally yawn while they are being preened by a clumping partner. An avadavat which is being allopreened rarely reacts aggressively to its preener but a finch often pecked its clumping partner after it had finished allopreening; in this context the aggression was not sufficient to cause the clumping partner to retreat.

DISCUSSION

It is not altogether clear why some species of birds have developed diurnal as well as nocturnal clumping behaviour, but originally it may have been an adaptation which helped small tropical birds to withstand large daily temperature excursions (Koenig, 1951; Sparks, 1946 a). In the African Estrildidae, habitat seems to be very important in determining whether clumping behaviour should evolve; those species which inhabit forests tend to move about in pairs, or very small parties and tend not to clump, whereas the closely related savannah species tend to be very gregarious and cluster. The Cuban Finch is an inhabitant of open grassland with scattered thorn bushes where it tends to move about in pairs (Lembye, 1850; Grundlach, 1876).

From the recent studies by Sparks (1964 a & b) and Harrison (in prep.) the function of allopreening behaviour in facilitating clumping is clear. When two birds approach each other in order to clump, there may be an increase in their fleeing or aggressive tendencies which would prevent them gaining contact. It is thus necessary for these tendencies to be checked in contact species in order to allow the individuals to cluster. This is achieved by the development of allopreening behaviour and the allopreening invitation postures. As an individual approaches to clump, the neighbour will tend to attack it (Sparks, 1962) but the clumping bird, by ruffling its head feathers, counteracts this tendency and elicits a grooming response. Thus the allopreening invitation behaviour acts as an aggression blocking mechanism in contact species.

In the Red Avadavat, there seems to be a reduction in intra-specific aggression outside the breeding session, and this no doubt helps to facilitate clumping behaviour. In the finches, both birds tended to be very aggressive towards each other and towards the avadavats. Aggression was also very marked in the allopreening of the finches, indeed, very often it was difficult to tell the difference between a bout of allopreening and a series of aggressive pecks. This problem was never experienced in the case of the avadavats, or any other estrildid species studied so far. Some Olive Finches which were kept were even more aggressive than the Cuban Finches, and the former species does not indulge in contact behaviour. When avadavats are clustering, they spend much of the time in autopreening, and this behaviour often leads to allopreening (Sparks, 1964 a & b), but clumping Cuban Finches tend to sit very still, and most of their autopreening is carried out when they are apart. The lack of movement may serve to avoid provoking an aggressive or an avoiding response from the clumping partner, and in this species the former response seems to be very easily aroused. The behaviour of the *canora* gave the impression that they were not very well adjusted contact species in that aggression was not as well controlled by the allopreening invitation behaviour as in the *amandava*.

Goodwin, R. (1959), has stated that wing quivering in the species of *Tiaris* is restricted to the juvenile begging behaviour, the female courtship

feeding invitation behaviour, and in *bicolor* and *olivacea* it seems to be incorporated into the cock courtship displays; wing quivering was not observed in the cock Cuban Finch's precopulatory display. Behaviour resembling juvenile begging may be produced when a bird is subjected to a conflict between a low tendency to withdraw from a more dominant individual and a low tendency to remain near it. In, for example, the Zebra Finch *Taeniopygia castanotis* (Immelmann, 1962) this motivational state may cause a bird to assume a submission posture. Now, allopreening invitation behaviour may be given by a submissive individual when confronted by a more dominant bird (Goodwin, D., 1960). The wing quivering described here in the allopreening invitation behaviour of the Cuban Finches may well have been induced by a low tendency to flee from the approaching clumping partner (fear) and a strong tendency to remain in order to clump with it.

Bill gaping seemed to be an aggressive component. When two Olive Finches came together, they tend to attack each other, and the aggression is preceded by bill gaping. Cuban Finches also gape in this context, but instead of drawing apart they often clump, and one of the gaping birds will start to preen the other. The less dominant individual's attacking tendency may wane and as it does so, the bill gaping response changes to the ruffled head posture. The elevation of the head feathers may be responsible for inciting an allopreening rather than an aggressive response in the other individual.

SUMMARY

The contact behaviour of the Cuban Finch has been compared with that of the Red Avadavat. The similarities must be the result of convergent evolution, but the finch is more aggressive than the avadavat and this is reflected by the closer association between aggression and allopreening in the former.

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The Giant Coot *Fulica gigantea* Eydoux and Souleyet

by A. W. JOHNSON

Received 29th February, 1964

Distribution: the high Andes of the extreme north of Chile (Sacaya and Cotacotani), north-western Bolivia (Titicaca) and south-western Peru (Junin).

Largest of all the *Fulica*, with a comparatively small lemon and white frontal shield and dark red legs and feet, the Giant Coot is absolutely unmistakable. A rare and extremely local bird frequenting exclusively high altitude, fresh-water lakes, it has been found in Chilean territory only in the Andes of the extreme north bordering on Bolivia and Peru and, within the past 50 years, only at two particular lakes—Parinacota and Cotacotani—in lat. 18° S. From Lake Caritaya southwards to Atacama, but always within the high altitude zone, it is replaced by the slightly smaller Horned Coot *Fulica cornuta*.

First discovered in 1836 in the Andes of southern Peru by the French "La Bonite" expedition, the Giant Coot was lost sight of for many years until Rahmer in 1886 and Lane in 1890 obtained a few specimens at the localities of Sacaya and Caucosa, east of Lake Huasco, in the puna zone of Tarapacá.

During his early years in Chile the author made two expeditions on muleback to the high plateau region where this enormous coot was reported to live, without finding a trace, and it was only in November, 1943, that he finally achieved his purpose as the culminating point of a trip by steamer, train, lorry and mule which took him and two colleagues through the highest cordilleras of Arica on the border between Chile and Bolivia. Our first meeting with this bird was on a small lake in the vicinity of Parinacota (Lake of the Flamingo) an Aymará Indian settlement situated at an altitude of 14,000 feet. On this lake were a pair of Giant Coots, a floating, raft-like nest and three half-grown young.

For a while it looked as if we should have to be satisfied with these meagre results, but on talking to a young Aymará who happened to turn up at the settlement that evening, we learned that higher up in the mountains at the foot of two volcanoes, known as Parinacota and Pomarape, was a much larger lake called Cotacotani and that this lake was inhabited by a large colony of "Ajoyas", the Aymará name for this coot.

We decided to investigate and, the author being less subject to mountain sickness than his companions, it naturally fell to his lot to accompany the guide to the lake. After a steep climb to an altitude of 16,000 feet, we topped a ridge and there immediately in front of us lay Cotacotani with the twin snow-capped volcanoes rising majestically beyond. On the lake were dark objects which looked like rafts and standing on them or swimming in the water round about were 30–50 black birds.

At this point the guide volunteered the information that, hidden in a hollow at the top of a neighbouring hill, was a boat. The "boat" turned out to be two old fashioned corrugated iron tubs which we put on our backs and carried down to the lake: here the guide proceeded to fasten the two sections together with wire, and, producing pitch and a box of matches

from his pocket, caulked these and other holes and thus made our primitive craft reasonably watertight. This took over an hour and just as the work was finished the sun, which had been shining brightly, disappeared behind clouds, a cold wind sprang up, the placid waters of the lake became a sea of racing waves and in no time it was snowing so hard that we could scarcely see a couple of yards in front of us. There was nothing for it but to get on our mules and return to base.

Setting out next morning with the first rays of light, we reached the shores of the lake just as the sun was rising behind the peaks and were witness to a scene of such grandeur as, once seen, lingers for ever in the memory. Cotacotani lay placid at the foot of the twin volcanoes which, lifting their snow-clad caps to over 20,000 feet, reflected their crystal-clear images in the tranquil waters of the lake to which they had given birth and which owed its very existence to their continually melting snows.

Here, amid this scene of awesome grandeur, of immense and almost terrifying solitude, where the inclemencies of the weather in its moments of anger are such that not a single Indian is bold enough to pitch his camp, the Giant Coot has taken up his abode, a far cry from the world of man, but if we may judge from the size and vigour of the colony, a favourable habitat for the propagation and survival of the species.

We pushed off and once we had learned to co-ordinate our paddling so as to avoid going round in circles, were able to visit all of the 36 platform-nests that floated in groups in those parts of the lake where the water-weed came close to or reached the surface. All were empty until on arriving at the twenty-eighth to be visited, it was found to contain three eggs, probably the first of this species ever to be seen by a white man. Subsequently the thirty-third nest visited produced a clutch of four.

Meanwhile the coots swam about and around us and in some cases actually came to meet us, showing not the slightest signs of fear and giving vent at frequent intervals to a loud cry, somewhere between the cackling of a hen and turkey's gobble but with the characteristic overtones of a coot. So distinctive is this call that it rings in our ears even now, 20 years later.

At different points on the lake, which covered an area of several acres we counted between 30 and 40 pairs, a few accompanied by large young birds, but the majority alone. Later, at the far end of the lake, we came across a colony of Night Herons (*Nycticorax nycticorax tayagu-guira*) nesting on a rocky islet and a group of about 20 young coots swimming about by themselves—undoubtedly birds of the year—thus confirming the guide's assertion that the "Agoya" nests twice a year, in August and again in late November or December. Obviously we had arrived in the interval between one laying and the next and this was why almost all the nests were empty and with adult birds standing about on the platforms.

These platforms varied a good deal in size, but the largest measured approximately 10 feet by 6 feet: they easily withstood the author's weight and were evidently used year after year, gradually increasing in size in the process. Built of strands of the same aquatic plant, *Ruppia filifolia*, which serve the coots as food—we actually saw them feeding—these platforms are anchored beneath the surface and are used as supports for the actual nests, resting or sleeping places for the adults and havens of refuge or training grounds for the young. It is evident that the nesting cavity or

depository for the eggs becomes flattened out with use and is built up again with soft fresh material at the same or some other point of the platform before each new laying; the sides of this cavity are so high and steep that it is impossible to see inside until one is alongside, or in some cases actually on the platform itself.

The seven eggs, and six others obtained subsequently from the same lake range in length from 62.4 to 72.5 and in width from 43.7 to 46.1 with means of 66.4 ± 0.82 and 44.6 ± 0.19 mm. respectively.

The eggs of the Giant Coot may be described in terms of the Ridgway colour code as follows:

Ground colour between "pale mouse grey" and "pale olive grey", but paler than either, with numerous fine and a few large spots of "dark vinaceous brown". There are also a few underlying markings of "pale lilac". Some eggs show overlying areas of light "snuff brown" which I am inclined to attribute to nest stain.

Acrocephalus dumetorum in Africa

by K. D. SMITH

Received 27th September, 1964

Kenneth Williamson, when going through material in the British Museum, found two specimens of Blyth's Reed Warbler (*Acrocephalus dumetorum*), previously unknown in Africa, which had been wrongly labelled as *Acrocephalus s. scirpaceus*. One was collected by myself at Zula, Eritrea, on 26th January, 1952; the other was taken in French Equatorial Africa on 26th March, 1953. The Zula bird was a male with enlarged testes, and was one of many small unstreaked acrocephaline warblers which were found wintering in the mangroves in coastal Eritrea. On the basis of the original identification it was assumed that *A. s. scirpaceus* was a common winter visitor and recorded as such; however, it seems feasible that the other birds wintering in the swamps may have been *dumetorum* as well. To the best of my knowledge *A. s. scirpaceus* is otherwise unknown in Eritrea and should be deleted, although several specimens of *A. s. fuscus* have been taken inland but not in coastal mangroves.

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CONSTITUTION

The first part of the constitution is devoted to the definition of the term "member" and the conditions under which a person may become a member of the Society. It is then stated that the Society shall be a body corporate with perpetual succession and the power to acquire and hold property, real and personal, and to dispose of the same in fee simple.

The second part of the constitution deals with the powers and duties of the Council. It is provided that the Council shall have the authority to make and alter the rules and regulations of the Society, and to elect and remove members of the Council. It is also stated that the Council shall have the power to suspend or expel any member of the Society who is guilty of misconduct.

The third part of the constitution is devoted to the election and removal of members of the Council. It is provided that the Council shall consist of not more than twenty members, and that the members shall be elected by the members of the Society at a general meeting. It is also stated that the Council shall have the power to remove any member of the Council who is guilty of misconduct.

The fourth part of the constitution deals with the powers and duties of the members of the Society. It is provided that the members shall have the right to elect and remove members of the Council, and to propose and elect members of the Council. It is also stated that the members shall have the right to propose and elect members of the Council.

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CONTRIBUTORS

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